

REPUBLIEK
VAN
SUID-AFRIKA



REPUBLIC
OF
SOUTH AFRICA

Staatskoerant Government Gazette

Verkoopprijs • Selling price
(AVB uitgesluit/GST excluded)

Plaaslik **60c** Local

Buitelands **85c** Other countries
Posvry • Post free

As 'n Nuusblad by die Poskantoor Geregistreer

Registered at the post office as a Newspaper

Vol. 295

PRETORIA, 5 JANUARIE 1990
JANUARY

No. 12241

GOEWERMENTSKENNISGEWINGS

DEPARTEMENT VAN BEPLANNING EN PROVINSIALE SAKE

No. 25

5 Januarie 1990

OMSKRYWING VAN GROND AANGEWYS AS 'N
ONTWIKKELINGSGEBIED IN DIE DISTRIK
RANDFONTEIN, TRANSVAAL

Kragtens artikel 33 (3) van die Wet op die Ontwik-
keling van Swart Gemeenskappe, 1984 (Wet No. 4 van
1984), omskryf ek, Andrew Fourie, Adjunk-minister
van Beplanning en Provinsiale Sake, in die Bylae hier-
van grond wat ingevolge artikel 33 (1) van bedoelde
Wet as 'n ontwikkelingsgebied aangewys is.

A. FOURIE,

Adjunk-minister van Beplanning en Provinsiale Sake.

(Lêer 20/5/K93/1)

BYLAE

'n Sekere stuk grond, 19,1321 ha groot, synde
Gedeelte 189 ('n gedeelte van Gedeelte 2) van die plaas
Witpoortje 245 IQ geleë in die distrik Randfontein,
soos aangetoon op Landmeter-generaaldiaqram
5930/87.

DEPARTEMENT VAN BINNELANDSE SAKE

No. 9

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING. — NJIKELA IN
LAYTERS

Dit het die Minister van Binnelandse Sake behaag
om, kragtens die bepalings van artikel 9 van die Wet op
Vreemdelinge, 1937 (Wet No. 1 van 1937), Hettie
Njikela en haar minderjarige kinders Albertina Sarah
Njikela, Grant Herman Njikela, Quintin Garry Njikela
en Clinton Gregory Njikela, woonagtig te Cometweg 5,
Oceanview, te magtig om die van Layters aan te neem.

719—A

GOVERNMENT NOTICES

DEPARTMENT OF PLANNING AND PROVINCIAL AFFAIRS

No. 25

5 January 1990

DEFINITION OF LAND DESIGNATED AS A
DEVELOPMENT AREA IN THE DISTRICT OF
RANDFONTEIN, TRANSVAAL

Under section 33 (3) of the Black Communities
Development Act, 1984 (Act No. 4 of 1984), I, Andrew
Fourie, Deputy Minister of Planning and Provincial
Affairs, define in the Schedule hereto land which has
been designated as a development in terms of section
33 (1) of the said Act.

A. FOURIE,

Deputy Minister of Planning and Provincial Affairs.

(File 20/5/K93/1)

SCHEDULE

A certain area of land, 19,1321 ha in extent, being
Portion 189 (a portion of Portion 2) of the farm Wit-
poortje 245 IQ situated in District of Randfontein, as
shown on Surveyor-General Diagram 5930/87.

DEPARTMENT OF HOME AFFAIRS

No. 9

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME. — NJIKELA TO
LAYTERS

The Minister of Home Affairs has been pleased
under the provisions of section 9 of the Aliens Act,
1937 (Act No. 1 of 1937), to authorise Hettie Njikela
and her minor children Albertina Sarah Njikela, Grant
Herman Njikela, Quintin Garry Njikela and Clinton
Gregory Njikela, residing at 5 Comet Road, Ocean-
view, to assume the surname of Layters.

12241—1

No. 10 5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—SINGENI IN PANZISO

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Lulamile Singeni, woonagtig te Matshobastraat 4, Lingelihle, Cradock, te magtig om die van Panziso aan te neem.

No. 11 5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—NACKWA IN SAMSODIEN

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Abdul Kader Nackwa, woonagtig te Leyle Place 4, Strandfontein, Village, te magtig om die van Samsodien aan te neem.

No. 12 5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—MOTILAL IN JASSIEM

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Jasiem Motilal, sy vrou Mariam en minderjarige kinders Shaheem Motilal, Rabia Motilal, Shaheem Motilal en Aamiel Motilal, woonagtig te Downingstraat 34, Montana, Kaap, te magtig om die van Jassiem aan te neem.

No. 13 5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—GOVINDASAMY IN REDDY

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Krishnasamy Govindasamy, sy vrou Pathmajurani en kinders Kribashen Govindasamy en Deneshwin Govindasamy, woonagtig te Rosemary-rylaan 67, Brindhaven, Verulam, te magtig om die van Reddy aan te neem.

No. 14 5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—YUSUF IN MAJID

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Mohammed Hoosain Abdool Majid, sy vrou Nazira en kinders Muhammad Majid en Haseena Majid, woonagtig te Herculesstraat 8008, Uitbreiding 9, Lenasia, te magtig om die van Majid aan te neem.

No. 10 5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—SINGENI TO PANZISO

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Lulamile Singeni, residing at 4 Matshoba Street, Lingelihle, Cradock, to assume the surname of Panziso.

No. 11 5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—NACKWA TO SAMSODIEN

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Abdul Kader Nackwa, residing at 4 Leyle Place, Strandfontein, Village, to assume the surname of Samsodien.

No. 12 5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—MOTILAL TO JASSIEM

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Jasiem Motilal, his wife Mariam and minor children Shaheem Motilal, Rabia Motilal, Shaheem Motilal and Aamiel Motilal, residing at 34 Downing Street, Montana, Cape, to assume the surname of Jassiem.

No. 13 5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—GOVINDASAMY TO REDDY

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Krishnasamy Govindasamy, his wife Pathmajurani and children Kribashen Govindasamy and Deneshwin Govindasamy, residing at 67 Rosemary Drive, Brindhaven, Verulam, to assume the surname of Reddy.

No. 14 5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—YUSUF TO MAJID

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Mohammed Moosain Abdool Majid, his wife Nazira and children Muhammad Majid and Haseena Majid, residing at 8008 Hercules Street, Extension 9, Lenasia, to assume the surname of Majid.

No. 15

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—SINGH IN
RAMSING

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Malini Singh, woonagtig te Dayalweg 135, Clairwood, Durban, te magtig om die van Ramsing aan te neem.

No. 16

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—STOKES IN
BREMNER-STOKES

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Glen Alan Stokes en sy vrou Suzanne Audrey Bremner, woonagtig te Forest Hill 3, St Thomasweg 165, Musgrave, 4001, te magtig om die van Bremner-Stokes aan te neem.

No. 22

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—HARRIDUTH IN
MAHARAJ

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Pravesh Harriduth, sy vrou Mala en sy minderjarige kind Pariksha, woonagtig te 98 Weg 917, Chatsworth, te magtig om die van Maharaj aan te neem.

No. 23

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—DLOMO IN
DELMORE

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Freddie Dlobo, sy vrou Priscilla Josephine en kinders Adelia Dlobo en Cleolaine Dlobo, woonagtig te Aurora-singel Salberau 19, Elsiesrivier, te magtig om die van Delmore aan te neem.

No. 24

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—McCULLOCH IN
FARRELL

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Patricia Marian Pamela McCulloch, woonagtig te Aandrus Lordslaan 3, Windsor, Randburg, te magtig om die van Farrell aan te neem.

No. 15

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—SINGH TO
RAMSING

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Malini Singh, residing at 135 Dayal Road, Clairwood, Durban, to assume the surname of Ramsing.

No. 16

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—STOKES TO
BREMNER-STOKES

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Glen Alan Stokes and his wife Suzanne Audrey Bremner, residing at 3 Forest Hill, 165 St Thomas Road, Musgrave, 4001, to assume the surname of Bremner-Stokes.

No. 22

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—HARRIDUTH TO
MAHARAJ

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Pravesh Harriduth, his wife Mala and his minor child Pariksha, residing at 98 Road 917, Chatsworth, to assume the surname of Maharaj.

No. 23

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—DLOMO TO
DELMORE

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Freddie Dlobo, his wife Priscilla Josephine and children Adelia Dlobo and Cleolaine Dlobo, residing at 19 Aurora Crescent Salberau, Elsie's River, to assume the surname of Delmore.

No. 24

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—McCULLOCH TO
FARRELL

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Patricia Marian Pamela McCulloch, residing at 3 Aandrus Lords Avenue, Windsor, Randburg, to assume the surname of Farrell.

No. 27

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING. — MASISO IN
SANDLENI

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Fanyana Lucas Masiso, sy vrou Ntongolozi Maria en sy minderjarige kinders Bongani Patrick, Innocent Lungani en Cromwell Dumisani, woonagtig te Mofokeng-seksie 286, Katlehong, te magtig om die van Sandleni aan te neem.

No. 28

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING. — SIMPSON IN
ALEXANDER

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Anthony David Simpson, woonagtig te Plot 61, Valley Settlements, Klipvallei, 1965, te magtig om die van Alexander aan te neem.

No. 29

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING. — POTGIETER IN
WALDRON

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Grant Michael Potgieter, woonagtig te Village Mews 8, Elandlaan, Amanzimtoti, te magtig om die van Waldron aan te neem.

No. 30

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING. — JIYANE IN
NTSHINGILA

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), William Jiyane en sy minderjarige kind Vusumzi Jiyane, woonagtig te Gebied 5—5452, Pimville, Soweto, te magtig om die van Ntshingila aan te neem.

No. 31

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING. — JACOBS IN
MOODLEY

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Joey Patrick Jacobs, sy vrou Julia en minderjarige kinders Mark Tommy Jacobs, Floyd Ronnie Jacobs, Amooy Jacobs en Shantel Jacobs, woonagtig te Heynsstraat 457, Schoongesight, Witbank, te magtig om die van Moodley aan te neem.

No. 27

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME. — MASISO TO
SANDLENI

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Fanyana Lucas Masiso, his wife Ntongolozi Maria and his minor children Bongani Patrick, Innocent Lungani and Cromwell Dumisani, residing at 286 Mofokeng Section, Katlehong, to assume the surname of Sandleni.

No. 28

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME. — SIMPSON TO
ALEXANDER

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Anthony David Simpson, residing at Plot 61, Valley Settlements, Klipvallei, 1965, to assume the surname of Alexander.

No. 29

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME. — POTGIETER TO
WALDRON

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Grant Michael Potgieter, residing at 8 Village Mews, Eland Avenue, Amanzimtoti, to assume the surname of Waldron.

No. 30

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME. — JIYANE TO
NTSHINGILA

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise William Jiyane and his minor child Vusumzi Jiyane, residing at 5452 Zone 5, Pimville, Soweto, to assume the surname of Ntshingila.

No. 31

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME. — JACOBS TO
MOODLEY

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Joey Patrick Jacobs, his wife Julia and minor children Mark Tommy Jacobs, Floyd Ronnie Jacobs, Amooy Jacobs and Shantel Jacobs, residing at 457 Heyns Street, Schoongesight, Witbank, to assume the surname of Moodley.

No. 32

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—SADEK IN KHAN

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Mahomed Sadek, sy vrou Karrima Banu en minderjarige kinders Sahirra Banu, Rashaad, Feroz, woonagtig te Kaladanstraat 497, Uitbreiding 11a, Lenasia, te magtig om die van Khan aan te neem.

No. 33

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—VADIVELU IN GOVENDER

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Dharmalingam Vadivelu, sy vrou Yellamma en kind Vino Vadivelu, woonagtig te Apollostraat 30, Havenside, Chatsworth, te magtig om die van Govender aan te neem.

No. 34

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—JONATHAN IN GREEN

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Shireen Jonathan, woonagtig te Mount Clareweg 21, Sybrandpark, Kaap, te magtig om die van Green aan te neem.

No. 35

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—KOEKEMOER IN HERBERT

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Marcus Terence Koekemoer, sy vrou Adele Lynette en sy minderjarige kinders Wendy en Craig, woonagtig te Pyramidstraat 80b, Edenglen-uitbreiding 21, Edenvale, te magtig om die van Herbert aan te neem.

No. 36

5 Januarie 1990

WET OP VREEMDELINGE, 1937

VANSVERANDERING.—MSIBI IN BUTHELEZI

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Ephraim Linda Msibi, woonagtig te Ezakheni D899, te magtig om die van Buthelezi aan te neem.

No. 32

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—SADEK TO KHAN

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Mahomed Sadek, his wife Karrima Banu and minor children Sahirra Banu, Rashaad, Feroz, residing at 497 Kaladan Street, Extension 11a, Lenasia, to assume the surname of Khan.

No. 33

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—VADIVELU TO GOVENDER

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Dharmalingam Vadivelu, his wife Yellamma and child Vino Vadivelu, residing at 30 Apollo Street, Havenside, Chatsworth, to assume the surname of Govender.

No. 34

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—JONATHAN TO GREEN

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Shireen Jonathan, residing at 21 Mount Clare Road, Sybrandpark, Cape, to assume the surname of Green.

No. 35

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—KOEKEMOER TO HERBERT

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Marcus Terence Koekemoer, his wife Adele Lynette and his minor children Wendy and Craig, residing at 80b Pyramid Street, Edenglen Extension 21, Edenvale, to assume the surname of Herbert.

No. 36

5 January 1990

ALIENS ACT, 1937

CHANGE OF SURNAME.—MSIBI TO BUTHELEZI

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Ephraim Linda Msibi, residing at D899 Ezakheni, to assume the surname of Buthelezi.

No. 37

5 Januarie 1990

WET OP VREEMDELINGE, 1937
VANSVERANDERING.—HANG IN
TAM

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Keith Sin Kee Tam Hang, sy vrou Judy en sy minderjarige kinders Bryan Tam, Nicholas Tam en Kelvin Tam, woonagtig te Ann Arborweg 18, Bramley Park, Sandton, te magtig om die van Tam aan te neem.

No. 38

5 Januarie 1990

WET OP VREEMDELINGE, 1937
VANSVERANDERING.—MADSEN IN
STEARNS

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Tanya Joy Madsen en Melissa Cecilia Madsen, woonagtig te Taai-boshof 701, Kraaistraat, Kwaggasrand, Pretoria, te magtig om die van Stearns aan te neem.

No. 41

5 Januarie 1990

WET OP VREEMDELINGE, 1937
VANSVERANDERING.—MOROM IN
RABE

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Shawn Randle Morom en sy vrou Gertruida Petronella Johanna, woonagtig te President Place 309, Tweede Laan, Alberton-Noord, te magtig om die van Rabe aan te neem.

No. 42

5 Januarie 1990

WET OP VREEMDELINGE, 1937
VANSVERANDERING.—RAMPERSAD IN
ABU BAKER

Dit het die Minister van Binnelandse Sake behaag om, kragtens die bepalings van artikel 9 van die Wet op Vreemdelinge, 1937 (Wet No. 1 van 1937), Heraman Rampersad, woonagtig te Weg 24 No. 1126, Chatsworth, te magtig om die van Abu Baker aan te neem.

DEPARTEMENT VAN HANDEL EN
NYWERHEID

No. 18

5 Januarie 1990

WET OP STANDAARDE, 1982

VOORGESTELDE WYSIGING VAN DIE VER-
PLIGTE SPESIFIKASIE VIR AARDLEKBEVEILI-
GINGSEENHEDE

Kragtens artikel 16 (3) van die Wet op Standaarde, 1982 (Wet No. 30 van 1982), word hiermee bekendgemaak dat die Adjunk-minister van Handel en Nywerheid van voorneme is om die verpligte spesifikasie vir aardlekbeveiligingseenhede, gepubliseer by Goewermentskennisgewing No. 2286 van 16 Oktober 1987, te wysig soos in die Bylae uiteengesit.

No. 37

5 January 1990

ALIENS ACT, 1937
CHANGE OF SURNAME.—HANG TO
TAM

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Keith Sin Kee Tam Hang, his wife Judy and his minor children Bryan Tam, Nicholas Tam and Kelvin Tam, residing at 18 Ann Arbor Road, Bramley Park, Sandton, to assume the surname of Tam.

No. 38

5 January 1990

ALIENS ACT, 1937
CHANGE OF SURNAME.—MADSEN TO
STEARNS

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Tanya Joy Madsen and Melissa Cecilia Madson, residing at 701 Taai-bos Court, Kraai Street, Kwaggasrand, Pretoria, to assume the surname of Stearns.

No. 41

5 January 1990

ALIENS ACT, 1937
CHANGE OF SURNAME.—MOROM TO
RABE

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Shawn Randle Morom and his wife Gertruida Petronella Johanna, residing at 309 President Place, Second Avenue, Alberton North, to assume the surname of Rabe.

No. 42

5 January 1990

ALIENS ACT, 1937
CHANGE OF SURNAME.—RAMPERSAD TO
ABU BAKER

The Minister of Home Affairs has been pleased under the provisions of section 9 of the Aliens Act, 1937 (Act No. 1 of 1937), to authorise Heraman Rampersad, residing at Road 24 No. 1126, Chatsworth, to assume the surname of Abu Baker.

DEPARTMENT OF TRADE AND
INDUSTRY

No. 18

5 January 1990

STANDARDS ACT, 1982

PROPOSED AMENDMENT OF THE COMPUL-
SORY SPECIFICATION FOR EARTH LEAKAGE
PROTECTION UNITS

Notice is given in terms of section 16 (3) of the Standards Act, 1982 (Act No. 30 of 1982), that the Deputy Minister of Trade and Industry intends to amend the compulsory specification for earth leakage protection units published by Government Notice No. 2286 of 16 October 1987, as set out in the Schedule.

Die doel van die wysiging is om die vereistes vir die ontwerp van die toetsfasiliteit en vir die werkstroom van die toetskring te verander.

Enige persoon wat beswaar wil maak teen die Adjunk-minister se voorneme om hierdie wysiging aan te bring, moet sy skriftelike beswaar voor of op die datum twee maande na publikasie van hierdie kennisgewing indien by die Direkteur-generaal, Suid-Afrikaanse Buro vir Standaarde, Privaatsak X191, Pretoria, 0001.

BYLAE

VOORGESTELDE WYSIGING VAN DIE VERPLIGTE SPESIFIKASIE VIR AARDLEKBEVEILIGINGSEENHEDE

Onderafdeling 4.13: Skrap die vierde sin en vervang dit deur die volgende:

Die toetsfasiliteit moet so ontwerp wees dat die ampèrewindings wat nodig is om die toetskring by aangeslane spanning in werking te stel, nie 2,5 maal die ampèrewindings oorskry wat gebruik word om die aanvoelkring in werking te stel nie.

Die beveiligingsgeleier mag nie lewendig word wanneer die toetsfasiliteit in werking gestel word nie.

Dit mag nie moontlik wees om die beveiligde kring te bekrag deur die toetsfasiliteit in werking te stel wanneer die aardlekstroombreker in die oop posisie is nie. Die toetsfasiliteit mag nie die enigste middele wees waarmee die breekaksie bewerkstellig word nie en dit is nie bedoel om vir hierdie funksie gebruik te word nie.

Opmerking: Die toetsfasiliteit is bedoel om slegs die uitklinkfunksie na te gaan en nie die waarde waarby die funksie effektief is met betrekking tot die aangeslane aardlekuitklinkstroom en tot die breektye nie.

No. 19

5 Januarie 1990

WET OP STANDAARDE, 1982

VOORGESTELDE WYSIGING VAN DIE VERPLIGTE SPESIFIKASIES VIR SEKERE ELEKTRIESE TOERUSTING

Kragtens artikel 16 (3) van die Wet op Standaarde, 1982 (Wet No. 30 van 1982), word hiermee bekendgemaak dat die Adjunk-minister van handel en Nywerheid van voorneme is om Bylae 6 van die verpligte spesifikasies vir sekere elektriese toerusting, gepubliseer by Goewermentskennisgewing No. 1017 van 3 Julie 1964 en herpubliseer by Goewermentskennisgewing No. R. 1615 van 22 Oktober 1965, te wysig soos in die Bylae uiteengesit.

Die doel van die wysiging is om die gebruik van gevormde termoplastiese materiaal by die vervaardiging van aangevormde proppe toe te laat en om 'n toets vir sodanige materiaal by te voeg.

Enige persoon wat beswaar wil maak teen die Adjunk-minister se voorneme om hierdie wysiging aan te bring, moet sy skriftelike beswaar voor of op die datum twee maande na publikasie van hierdie kennisgewing indien by die Direkteur-generaal, Suid-Afrikaanse Buro vir Standaarde, Privaatsak X191, Pretoria, 0001.

The purport of the amendment is to change the requirements for the design of the test facility and for the operating current of the test circuit.

Any person who wishes to object to the intention of the Deputy Minister to effect this amendment shall lodge his objection in writing with the Director General, South African Bureau of Standards, Private Bag X191, Pretoria, 0001, on or before the date two months after publication of this notice.

SCHEDULE

PROPOSED AMENDMENT OF THE COMPULSORY SPECIFICATION FOR EARTH LEAKAGE PROTECTION UNITS

Subsection 4.13: Delete the fourth sentence and substitute the following:

The test facility shall be so designed that the ampère turns required to operate the test circuit at rated voltage do not exceed 2,5 times the ampère turns utilized to operate the sensing circuit.

The protective conductor shall not become live when the test facility is operated.

It shall not be possible to energize the protected circuit by operating the test facility when the earth leakage circuit-breaker is in the open position. The test facility shall not be the sole means of performing the opening operation and is not intended to be used for this function.

Note: The test facility is intended to check the tripping function only, and not the value at which the function is effective with respect to the rated earth leakage tripping current and to the break times.

No. 19

5 January 1990

STANDARDS ACT, 1982

PROPOSED AMENDMENT OF THE COMPULSORY SPECIFICATIONS FOR CERTAIN ITEMS OF ELECTRICAL EQUIPMENT

Notice is given in terms of section 16 (3) of the Standards Act, 1982 (Act No. 30 of 1982), that the Deputy Minister of Trade and Industry intends to amend Schedule 6 of the compulsory specifications for certain items of electrical equipment published by Government Notice No. 1017 of 3 July 1964 and republished by Government Notice No. R. 1615 of 22 October 1965, as set out in the Schedule.

The purport of the amendment is to allow the use of moulded thermoplastic materials in the manufacture of moulded-on plugs, and to add a new test for such materials.

Any person who wishes to object to the intention of the Deputy Minister to effect this amendment shall lodge his objection in writing with the Director-General, South African Bureau of Standards, Private Bag X191, Pretoria, 0001, on or before the date two months after publication of this notice.

BYLAE

VOORGESTELDE WYSIGING VAN DIE VERPLIGTE SPESIFIKASIES VIR SEKERE ELEKTRIESE TOE-
RUSTINGBYLAE 6: VERPLIGTE SPESIFIKASIE VIR KONTAKPROPPE, KONTAKSOKKE EN VERDEEL-
PROPPE

Onderafdeling 3.4.1.2: Voeg die volgende nuwe onderafdeling by:

(c) *Brandraagheid met behulp van gloeidraad getoets (aangevormde proppe)*. By die toets van dele (isoleermateriaal) van aangevormde proppe wat nie bedoel is om stroomdraende dele of dele van die aardingskring in posisie te hou nie (hoewel hulle in kontak daarmee kan wees) volgens 6.12, moet enige sigbare vlamme en gloeiing 30 sekondes nadat die gloeidraad verwyder is, uitgedoof wees. Die sneespapier mag nie brand nie en die bord mag nie geskroei wees nie.

Onderafdeling 3.10.1: Voeg die volgende aan die einde van die onderafdeling by:

of gevormde termoplastiese materiaal wat aan die vereistes van 3.4.1.2 (a) en (c) voldoen.

Afdeling 6. Voeg die volgende nuwe onderafdeling by:

6.12 GLOEIDRAADTOETS (AANGEVORMDE PROPPE).

6.12.1 (a) Apparaat (kyk Fig. 2)

(1) 'n *Gloeidraad* bestaande uit 'n lus van 80:20 Ni/Cr-draad soos in Fig. 1 gevorm. By die vorming van die lus, gebruik middels wat fyn barsvorming op die punt sal voorkom.

(2) *Termokoppel*: 'n Bemantelde fyndraadtermokoppel van Chromel- en Alumeldraad, met 'n buitendiameter wat nie 0,5 mm oorskry nie. Die sweisaansluiting is binne die skag. Die termokoppel word òf in 'n sak gerangskik wat bestaan uit 'n gat met 'n diameter van 0,6 mm wat in die punt van die gloeidraadlus geboor is, soos aangetoon in detail Z van Fig. 1, òf met ander middele stewig op 'n plek, ongeveer 10 mm van die punt af, aan die lus bevestig. Die koue aansluiting word in smeltys of in 'n temperatuurkompenseerkas gehou.

(3) *Millivoltmeter*: 'n Millivoltmeter vir die meet van die termokoppelspanning en wat aan die vereistes vir klas 0,5-noukeurigheid van SABS 1299 'Elektriese meetinstrumente met regstreekse aanwysing en die toebehore daarvan' voldoen.

(4) *Stroombron*: 'n Stroombron wat 'n stroom (WS of GS) met 'n waarde in die bestek van 120–150 A kan voorsien en wat aan die gloeidraadlus verbind is.

(b) *Toetseksemplaar*: Voer die toets op 'n volledige (heel) aangevormde prop uit.

6.12.2 Voorbereiding:

(a) Kondisioneer die prop minstens 18 uur lank in 'n beheerde atmosfeer met 'n relatiewe humiditeit van $75 \pm 5\%$ en 'n temperatuur van $20 \pm 5^\circ\text{C}$.

(b) Kalibreer die termokoppel by 'n temperatuur van 960°C , bepaal as die millivoltmeteraflesing op die oomblik waarop 'n stukkie suiwer silwerfoelie [$99,8\% (m/m)$], $2\text{ mm} \times 2\text{ mm}$ groot en 0,66 mm dik, wat plat op die bovlak van die punt van die verhitte gloeidraad gelê is, begin smelt.

(c) Plaas 'n stuk witdennehoutbord, $10 \pm 1\text{ mm}$ dik en bedek met 'n enkellaag sneespapier met 'n massa van $12\text{--}25\text{ g/m}^2$, in die middel van en 200 mm onder die gloeidraad.

6.12.3 Prosedure:

(a) Maak seker dat die punt van die gloeidraad vry is van oorblyfsels van isoleermateriaal, bv. deur dit met 'n borsel skoon te maak.

(b) Plaas die toetsapparaat in 'n trekvrystreke kamer in gedempte lig sodat enige vlam sigbaar sal wees.

(c) Plaas die prop wat getoets word so dat die oppervlak wat getoets gaan word, vertikaal is.

(d) Skakel die stroom aan, stel dit so dat die temperatuur van die gloeidraad minstens 650°C is en hou die stroom minstens 60 sekondes lank konstant by hierdie waarde voordat daar met die toets voortgegaan word. Gebruik 'n krag van hoogstens 1 N en bring die punt van die gloeidraad in aanraking met die oppervlak wat getoets word. Behou die kontak 30 ± 1 sekonde lank voordat daar met die toets voortgegaan word.

Opmerking: Indien moontlik, wend die punt van die gloeidraad op 'n plat oppervlak aan en nie op groewe, uitslagplaatjies, smal inlatings of skerp rande nie. Wend dit aan op die dunste deel, maar hoogstens 15 mm van die borand van die prop af.

(e) Hou die krag tussen die gloeidraad en die prop vol deur toe te laat dat die massastuk die gloeidraad na die oppervlak van die prop beweeg, maar moenie toelaat dat die totale beweging 7 mm oorskry nie.

(f) Haal die punt van die gloeidraad van die prop af en vermy enige lugbeweging wat 'n uitwerking op die toetsresultate kan hê.

6.12.4 Meting en waarneming: Hou die prop, die omringende dele en die sneespapierlaag deurgaans tydens die toets dop. Indien ontbranding plaasvind en indien die vlam vervolgens uitgedoof word, teken die tyd aan waarop elk plaasvind en gaan na vir voldoening aan 3.4.1.2.

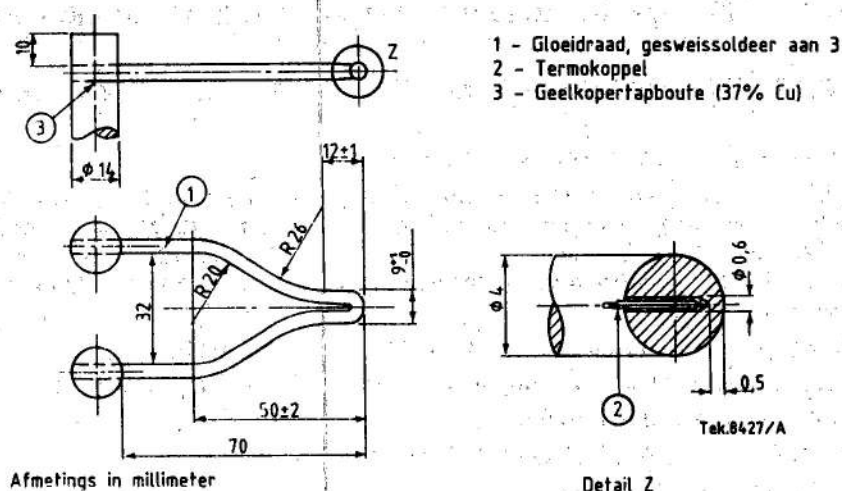


Fig. 1 - Gloeidraad met Termokoppel

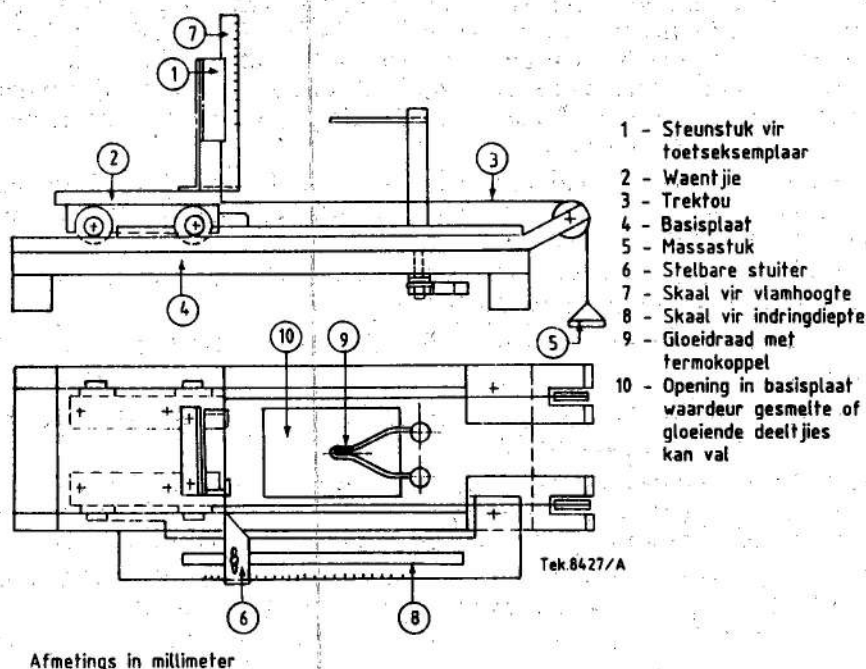


Fig. 2 - Gloeidraadtoetsapparaat

SCHEDULE

PROPOSED AMENDMENT OF THE COMPULSORY SPECIFICATIONS FOR CERTAIN ITEMS OF ELECTRICAL EQUIPMENT

SCHEDULE 6: COMPULSORY SPECIFICATION FOR PLUGS, SOCKET-OUTLETS AND SOCKET OUTLET ADAPTORS

Subsection 3.4.1.2: Add a new subsection as follows:

(c) *Resistance to burning when tested by glow-wire (moulded-on plugs).* When parts (of insulating material of moulded-on plugs not intended to retain current-carrying parts or parts of the earthing circuit in position (although they may be in contact with them) are tested in accordance with 6.12, any visible flames and glowing shall have become extinguished 30 seconds after removal of the glow-wire. There shall be no burning of the tissue paper or scorching of the board.

Subsection 3.10.1: Add the following at the end of the subsection:

or moulded thermoplastic material complying with the requirements of 3.4.1.2 (a) and (c).

Section 6. Add the following new subsection:

6.12 GLOW-WIRE TEST (MOULDED-ON PLUGS).

6.12.1 (a) Apparatus (see Fig. 2)

(1) *A glow-wire:* consisting of a loop of 80:20 Ni/Cr wire formed as shown in Fig. 1. When forming the loop, use means which will avoid fine cracking of the tip.

(2) *Thermocouple:* A sheathed fine wire thermocouple of Chromel and Alumel wires, and of outside diameter not exceeding 0,5 mm. The welded junction is located inside the sheath. The thermocouple is arranged either in a pocket comprising a hole of diameter 0,6 mm that has been drilled in the tip of the glow-wire loop, as shown in Detail Z of Fig. 1, or is attached securely to the loop by other means at a position approximately 10 mm from the tip. The cold junction is kept in melting ice or in a temperature compensation box.

(3) *Millivoltmeter:* A millivoltmeter for measuring the thermocouple voltage, and that complies with the requirements for accuracy of Class 0,5 of SABS 1299 'Direct-acting indicating electrical measuring instruments and their accessories'.

(4) *Current source:* A current source capable of supplying a current (a.c. or d.c.) of value in the range 120–150 A and connected to the glow-wire loop.

(b) *Test specimen:* Conduct the test on a complete (unbroken) moulded-on plug.

6.12.2 Preparation:

(a) Condition the plug for a period of at least 18 hours in a controlled atmosphere having a relative humidity of $75 \pm 5\%$ and a temperature of $20 \pm 5^\circ\text{C}$.

(b) Calibrate the thermocouple at a temperature of 960°C , determined as the millivoltmeter reading at the instant of melting of a $2\text{ mm} \times 2\text{ mm}$ chip of pure silver foil [99,8 % (m/m)], of thickness 0,66 mm, which is laid flat on the upper surface of the tip of the heated glow-wire.

(c) Position, centrally and 200 mm below the glow-wire, a piece of white pine board of thickness $10 \pm 1\text{ mm}$ and covered with a single layer of wrapping tissue of mass 12–25 g/m².

6.12.3 Procedure:

(a) Ensure that the tip of the glow-wire is free of residue of insulating material, e.g. by cleaning it with a brush.

(b) Place the test apparatus in a draught-free room in subdued light in order that any flame will be visible.

(c) So position the plug under test that the surface to be tested is vertical.

(d) Switch on the current, so adjust it that the temperature of the glow-wire is at least 650°C and keep the current constant at this value for at least 60 seconds before proceeding. Using a force not exceeding 1 N, bring the tip of the glow-wire into contact with the surface to be tested and maintain contact for 30 ± 1 seconds before proceeding.

Note: If possible, apply the tip of the glow-wire to a flat surface and not to grooves, knock-outs, narrow recesses or sharp edges. Apply it where the section is thinnest, but not more than 15 mm from the upper edge of the plug.

(e) Maintain the force between the glow-wire and the plug by allowing the masspiece to move the glow-wire towards the surface of the plug but do not allow the total movement to exceed 7 mm.

(f) Remove the tip of the glow-wire from the plug, avoiding any movement of air which might affect the results of the test.

6.12.4 Measurement and observations: Observe the plug, the surrounding parts, and the layer of tissue paper throughout the test. If ignition takes place, and if subsequently the flame is extinguished, record the time at which each event takes place, and check for compliance with 3.4.1.2.

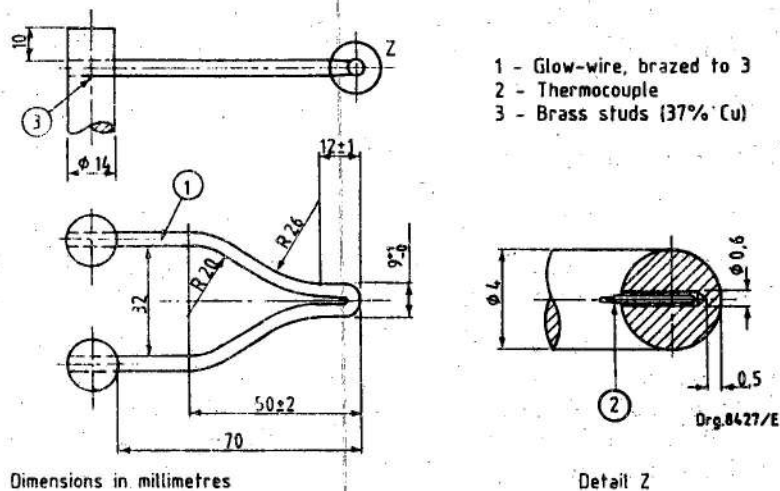


Fig. 1 - Glow-wire with Thermocouple

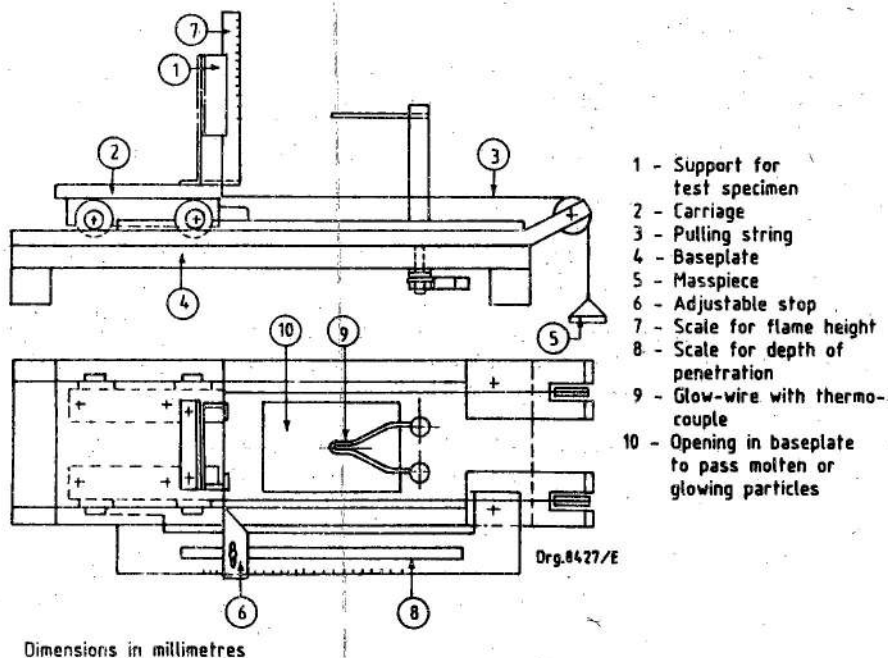


Fig. 2 - Glow-wire Test Apparatus

No. 20

5 Januarie 1990

WET OP STANDAARDE, 1982

VOORGESTELDE WYSIGING VAN DIE VERPLIGTE SPESIFIKASIE VIR DIE VERVAARDIGING, PRODUKSIE, BEWERKING OF BEHANDELING VAN INGEMAakte VIS, INGEMAakte VISPRODUKTE EN INGEMAakte SEESKULPDIERE

Kragtens artikel 16 (3) van die Wet op Standaarde, 1982 (Wet No. 30 van 1982), word hiermee bekendgemaak dat die Adjunk-minister van Handel en Nywerheid van voorneme is om die verpligte spesifikasie vir die vervaardiging, produksie, bewerking of behandeling van ingemaakte vis, ingemaakte visprodukte en ingemaakte seeskulpdier, gepubliseer by Goewermmentskennisgewing No. R. 358 van 10 Maart 1972, te wysig soos in die Bylae uiteengesit.

No. 20

5 January 1990

STANDARDS ACT, 1982

PROPOSED AMENDMENT OF THE COMPULSORY SPECIFICATION FOR THE MANUFACTURE, PRODUCTION, PROCESSING OR TREATMENT OF CANNED FISH, CANNED FISH PRODUCTS AND CANNED MARINE MOLLUSCS

Notice is given in terms of section 16 (3) of the Standards Act, 1982 (Act No. 30 of 1982), that the Deputy Minister of Trade and Industry intends to amend the standard specification for the manufacture, production, processing or treatment of canned fish, canned fish products and canned marine molluscs published by Government Notice No. R. 358 of 10 March 1972, as set out in the Schedule.

Die doel van die wysiging is om die visspesies te bepaal wat ooreenkomstig onderafdeling 9.1.2 (g) as Pilchards/Sardyne beskryf mag word.

Enige persoon wat beswaar wil maak teen die Adjunk-minister se voorneme om hierdie wysiging aan te bring, moet sy skriftelike beswaar voor of op die datum twee maande na publikasie van hierdie kennisgewing indien by die Direkteur-generaal, Suid-Afrikaanse Buro vir Standaarde, Privaatsak X191, Pretoria, 0001.

BYLAE

VOORGESTELDE WYSIGING VAN DIE VERPLIGTE SPESIFIKASIE VIR DIE VERVAARDIGING, PRODUKSIE, BEWERKING OF BEHANDELING VAN INGEMAAKTE VIS, INGEMAAKTE VISPRODUKTE EN INGEMAAKTE SEESKULPDIERE

Onderafdeling 9.1.2 (g): Skrap die bestaande onderafdeling en vervang dit deur die volgende:

9.1.2 (g) Behalwe wanneer hulle volgens 6.1.7 en 6.2.4 verpak is, mag sardyne, in watter vorm ook al, slegs as "Sardyne"/"Pilchards" beskryf word. Wanneer sardyne volgens 6.1.7 en 6.2.4 verpak is, mag hulle as "Sardiens"/"Sardientjies"/"Sardines" beskryf word.

Slegs die volgende spesies mag as sardyne beskryf word:

Sardinops sagax caerulea (Girard).
Sardinops sagax sagax (Jenyns).
Sardinops sagax melanosticta (Schlegel).
Sardinops sagax ocellata (Pappe).
Sardina pilchardus (Walbaum).

The purport of the amendment is to determine the species of fish which may be labelled Pilchards/Sardyne in accordance with Subsection 9.1.2 (g).

Any person who wishes to object to the intention of the Deputy Minister to effect this amendment shall lodge his objection in writing with the Director-General, South African Bureau of Standards, Private Bag X191, Pretoria, 0001, on or before the date two months after publication of this notice.

SCHEDULE

PROPOSED AMENDMENT OF THE COMPULSORY SPECIFICATION FOR THE MANUFACTURE, PRODUCTION, PROCESSING OR TREATMENT OF CANNED FISH, CANNED FISH PRODUCTS AND CANNED MARINE MOLLUSCS

Subsection 9.1.2 (g): Delete the existing subsection and insert the following:

9.1.2 (g) Except when packed in accordance with 6.1.7 and 6.2.4, pilchards in any form shall be described only as "Pilchards"/"Sardyne". When packed in accordance with 6.1.7 and 6.2.4, pilchards may be described as "Sardines"/"Sardiens"/"Sardientjies".

The following species only shall be described as pilchards:

Sardinops sagax caerulea (Girard).
Sardinops sagax sagax (Jenyns).
Sardinops sagax melanosticta (Schlegel).
Sardinops sagax ocellata (Pappe).
Sardina pilchardus (Walbaum).

No. 21

5 Januarie 1990

WET OP STANDAARDE, 1982

VOORGESTELDE VERPLIGTE SPESIFIKASIE VIR BIOLOGIESE VEILIGHEIDSKABINETTE (KLAS I, II EN III)

Hierby word kragtens artikel 16 (3) van die Wet op Standaarde, 1982 (Wet No. 30 van 1982), bekendgemaak dat die Adjunk-minister van handel en Nywerheid voornemens is om die spesifikasie wat in die Bylae vervat is, tot 'n verpligte spesifikasie vir biologiese veiligheidskabinette (Klas I, II en III) te verklaar.

Die doel van sodanige verpligverklaring is om vereistes neer te lê vir die konstruksie, toebehore, installering en prestasie van drie klasse (Klas I, II en III) biologiese veiligheidskabinette.

Enigeen wat teen die bepalings van die voorgestelde verpligte spesifikasie wil beswaar aanteken, moet sy besware voor of op 'n datum twee maande na publikasie van hierdie kennisgewing, skriftelik by die Direkteur-generaal, Suid-Afrikaanse Buro vir Standaarde, Privaatsak X191, Pretoria, 0001, indien.

BYLAE

VOORGESTELDE VERPLIGTE SPESIFIKASIE VIR BIOLOGIESE VEILIGHEIDSKABINETTE (KLAS I, II EN III)

1. BESTEK.

1.1 Hierdie spesifikasie dek vereistes vir die konstruksie, toebehore, installering en prestasie van drie klasse (klas I, II en III) biologiese veiligheidskabinette wat bedoel is om die operateur sowel as die omgewing te beskerm teen die gevare verbonde aan gevaarlike mikrobiologiese materiaal en (indien aldus vereis) organiese gifstowwe en nie-korroderende vlugtige organiese stowwe.

No. 21

5 January 1990

STANDARDS ACT, 1982

PROPOSED COMPULSORY SPECIFICATION FOR BIOLOGICAL SAFETY CABINETS (CLASSES I, II AND III)

Notice is hereby given in terms of section 16 (3) of the Standards Act, 1982 (Act No. 30 of 1982), that the Deputy Minister of Trade and Industry intends to declare the specification contained in the Schedule, to be a compulsory specification for biological safety cabinets (Classes I, II and III).

The purpose of such a declaration is to prescribe requirements for the construction, fitting, installation and performance of three classes (Classes I, II and III) of biological safety cabinets.

Any person who wishes to object to the provisions of the proposed compulsory specification shall submit his objection in writing to the Director-General, South African Bureau of Standards, Private Bag X191, Pretoria, 0001, on or before a date two months after publication of this notice.

Opmerking: Biologiese veiligheidskabinette is nie bedoel om as beskerming teen korroderende chemikalieë of radio-aktiewe materiaal te dien nie.

- 1.2 Die spesifikasie dek nie die werklike ontwerp van 'n veiligheidskabinet nie en lê geen beperkings op nuwe ontwerp nie, mits 'n biologiese veiligheidskabinet van nuwe ontwerp voldoen aan die vereistes vir materiaal, betroubaarheid, prestasie en veiligheid wat in hierdie spesifikasie aangegee word.

Opmerking: Veiligheidskabinette van klas I, II en III moet nie verwar word nie met skoon werkstasies met laminêre vloei wat gewoonlik horisontaal en vertikaal in die rigting van die operateur uit laat en wat nie net geen beskerming aan die operateur verleen nie, maar selfs blootstelling aan luggedraagde gevare kan verhoog.

2. WOORDBEPALING.

- 2.1 Die volgende woordbepalings geld vir die doel van hierdie spesifikasie:

Afgedig: Sonder enige openinge waardeur water of gas kan inkom of ontsnap.

Bestand: Beskrywend van materiaal wat hul oorspronklike oppervlakeienskappe behou in ander toestande as dié wat vir normale gebruik bedoel is.

DOP: Di-oktielftalaat-(aërosol).

Geredelik toeganklik (maklik toeganklik): Kan maklik sonder gereedskap vir behoorlike en deeglike skoonmaak en visuele ondersoek oopgemaak word.

Gevaar, biogevaar of gevaarlike materiaal: Infektiewe partikels wat werklike of potensiële gevaar inhou vir die welsyn van mense, diere of plante, hetsy regstreeks deur infeksie of onregstreeks deur kontaminasie van die omgewing.

Gifstowwe: Stowwe wat 'n nadelige fisiologiese uitwerking op biologiese stelsels het.

Giftig: Beskrywend van stowwe wat 'n nadelige fisiologiese uitwerking op biologiese stelsels het.

Glad: Met 'n oppervlak wat vry van invretings en insluitsels is.

HEPA-filter: Hoëdoeltreffendheid-filter vir partikels in lug.

Kabinet: 'n Biologiese veiligheidskabinet van klas I, II of III, soos toepaslik.

Konstruksie: Die vervaardiging, samestelling van subeenhede (indien toepaslik) en installering van die biologiese veiligheidskabinet.

Maklik verwyderbaar: Kan sonder gereedskap uit die hoofteenheid verwyder word.

Ontsmetting (dekontaminasie): Die verwydering of onaktivering van infektiewe partikels of die verwydering of neutralisering van giftige stowwe.

Skoonmaakbaar (skoon): Toeganklik en van sodanige materiaal en afwerking en op so 'n wyse vervaardig dat vuil volgens normale skoonmaakmetodes doeltreffend verwyder kan word.

Sperlug (voorvlaklug): Atmosferiese lug wat uit die kameromgewing deur die werktoegangsopening van die kabinet ingesuij word en op dié wyse 'n lugversperring oor die opening skep waardeur partikels in die kabinet nie na die buiteatmosfeer kan ontsnap nie.

Toe: Sonder enige openinge wat groot genoeg is om insekte of knaagdiere in te laat.

Toeganklik: Kan met behulp van eenvoudige gereedskap soos 'n skroewedraaier, knyptang of 'n oopbeksleutel (moersleutel) vir die doel van behoorlike en deeglike skoonmaak en visuele ondersoek oopgemaak word.

Verwyderbaar: Kan met behulp van eenvoudige gereedskap soos 'n skroewedraaier, knyptang of 'n oopbeksleutel (moersleutel) uit die hoofteenheid verwyder word.

Werkruimte: Die deel van die binnekant van die kabinet waarin die gevaarlike materiaal veilig gemanipuleer kan word.

3. ALGEMENE VEREISTES.

- 3.1 **KLAS:** 'n Kabinet moet van een van die volgende klasse wees:

- (a) **Klas I:** 'n Gedeeltelik toe kabinet wat so gemaak is dat lug weg van die operateur af na binne vloei en die uitlaatlug deur 'n HEPA-filter gefiltreer word voordat dit uit die kabinet uit gelaat word. Die kabinet verleen beskerming aan personeel en die omgewing teen minimaal gevaarlike stowwe en partikels, d.w.s. by risikovolke wat geassosieer word met stowwe en partikels wat minimale of geen gevaar vir mense, diere of plante inhou nie, mits die normale voorsorgmaatreëls by die hantering van mikrobiologiese materiaal getref word.

Opmerking: Klas I-kabinette is ontwerp om die blootstelling van laboratoriumpersoneel en die omgewing aan luggedraagde verspreiding van mikrobiologiese materiaal tydens werkprosedures te verminder. Hierdie kabinette mag nie gebruik word as, of verwar word met dampkaste wat vir chemiese prosedures bedoel is nie.

- (b) *Klas II:* 'n Gedeeltelik toe kabinet wat so gemaak is dat die werkruimte deurspoel word met 'n skoon, gefiltreerde eenrigtinglugvloei en dat die ontsnapping van partikels uit die werkruimte deur middel van lugvloei na binne deur die werktoegangsopening voorkom word. Die kabinet verleen beskerming aan personeel en die omgewing teen gewone of potensieel gevaarlike mikrobiologiese partikels, d.w.s. by risikovlakke wat geassosieer word met stowwe en partikels wat siekte by mense, diere of plante kan veroorsaak en wat met normale mikrobiologiese tegnieke in bedwang gehou kan word. Personeel wat materiaal in hierdie kabinette hanteer, moet oor dieselfde vlak van bevoegdheid beskik as personeel wat formeel as mikrobioloog opgelei is.

Opmerking: Klas II-kabinette is ontwerp om die blootstelling van laboratoriumpersoneel en die omgewing aan luggedraagde verspreiding van infektiewe materiaal tydens werkprosedures te verminder en om terselfdertyd luggedraagde kontaminasie, wat die eksperiment kan benadeel, te beheer.

- (c) *Klas III:* 'n Heeltemal toe, geventileerde kabinet van gasdigte konstruksie wat so gemaak is dat die operateur deur 'n fisiese versperring van die werk geskei word en dat die werkruimte so met lug onder negatiewe druk deurspoel word dat dit hoogs onwaarskynlik is dat partikels uit die werkruimte kan ontsnap. Die kabinet verleen beskerming aan personeel en die omgewing teen spesiale en uiters gevaarlike mikrobiologiese partikels, d.w.s. by risikovlakke wat geassosieer word met stowwe en partikels wat hoogs infektief of giftig is vir mense, diere en plante, en wat gevaarlike siektes kan veroorsaak, of by risikovlakke wat geassosieer word met stowwe en partikels wat genetiese mutasies veroorsaak of saam met ander materiaal 'n sinergistiese uitwerking kan hê.

Personeel wat materiaal in hierdie kabinette hanteer, moet oor dieselfde vlak van bevoegdheid beskik as personeel wat formeel as mikrobioloog opgelei is en wat ook behoorlike opleiding in die hantering van uiters gevaarlike stowwe ontvang het.

Opmerking: Klas III-kabinette is ontwerp om die blootstelling van laboratoriumpersoneel en die omgewing aan luggedraagde verspreiding van hoogs infektiewe materiaal tydens werkprosedures tot 'n minimum te beperk en om terselfdertyd luggedraagde kontaminasie, wat die eksperiment kan benadeel, te beheer.

3.2 AFMETINGS.

- 3.2.1 *Buiteafmetings:* Die totale afmetings van 'n kabinet, uitgesonderd die maklik verwyderbare dele, moet so wees dat dit deur die opening van 'n standaardenkeldeur met 'n nominale hoogte en breedte van onderskeidelik 2,0 m en 0,78 m, wat in 'n 1,5 m breë gang oopmaak, kan gaan.
- 3.2.2 *Werkruimteafmetings:* In die geval van klas I- en II-kabinette, mag die breedte van die werkruimte nie 1 900 mm oorskry nie en moet die diepte in die bestek van 500–700 mm wees. Die werkruimte moet minstens 550 mm hoog wees. Die volume van die werkruimte moet minstens 0,2 m³ en hoogstens 0,75 m³ wees.

3.3 BUITEDOP (HOOFSTRUKTUUR) – MATERIAAL EN KONSTRUKSIE.

3.3.1 *Algemeen:*

(a) 'n Kabinet moet gemaak wees van materiaal wat volgens 6.12 getoets, as korrosiebestand beskou word. Indien vlekvrystaal egter gebruik word, moet dit van AISI-graad 304 wees en geld die vereiste vir korrosiebestandheid nie.

(b) Die materiaal moet ondeurlatend vir vloeistof wees.

(c) Daar mag geen barste en oppervlakgebreke, met inbegrip van gebreke wat ondoeltreffende passing met paksukoppervlakke of ander afdigtoestelle tot gevolg het, wees nie. Alle struktuurlasse wat nie gesweis is nie, moet afgedig wees met nie-poreuse materiaal wat nie sal bars of poreus raak nie. Die struktuursterkte van enige las of verbinding in die kabinet of enigeen van die panele daarvan moet onafhanklik wees van die afdigting wat deur die paksuk of afdigmateriaal gevorm word.

- 3.3.2 *Stabiliteit:* Die hoofstruktuur mag nie onstabiliteitspunt bereik wanneer laterale kragte van tot 250 N of 'n afwaartse krag van tot 50 N op die voorrand van die kabinet uitgeoefen word nie. Die uitlaatlugleiding mag nie gebruik word om stabiliteit te verleen nie.

In die geval van 'n kabinetstruktuur wat nie hierdie mate van stabiliteit bied nie, moet daar voorsiening gemaak word vir die bevestiging van die kabinet aan die vloer of muur deur middel van klampe of boute.

- 3.3.3 *Vensters:* Vensters moet van lamelglas wees wat aan die prestasievereistes van SABS 1263 'Veiligheids- en sekerheidsbeglasingsmateriaal vir geboue', Deel II-1987 'Inbraak- en vandaalbestande beglasingsmateriaal', gepubliseer by Goewermentskennisgewing No. 141 van 5 Februarie 1988, voldoen of van enige ander geskikte deursigtige materiaal wat teen ultraviolet strale bestand is en waarvan die prestasiefaktor gelyk aan of beter is as die wat vir die lamelglas vereis word.

Opmerking: Lamelveiligheidsglas wat 6 mm dik is, voldoen gewoonlik aan hierdie vereiste.

- 3.3.4 *Toegangspanele*: Verwyderbare toegangspanele moet voorsien wees vir die instandhouding of verwydering (of albei) van filters, blasers, motors, verligting, elektriese komponente en loodgieterswerk. Wanneer panele of deksels in posisie is, moet die afdigting van die toegangspanele of deksels die lekkasie van gekontamineerde lug na die omringende atmosfeer voorkom. Fisiese middele om groot toegangspanele of deksels in posisie te hou en te steun, moet voorsien wees om die veilige aanbring en verwydering daarvan te vergemaklik.
- 3.3.5 *Spore en leibane*: Alle spore en leibane vir deure, vensters, deksels en toegangspanele moet so gemaak en geïnstalleer wees dat die vergaring van vreemde stof tot die minimum beperk word en skoonmaak vergemaklik word.
- 3.4 **WERKRUIMPTE—MATERIAAL EN KONSTRUKSIE.**
- 3.4.1 *Algemeen*:
- (a) Die werkruimte, uitgesonderd die kykvenster maar met inbegrip van die opvanger en roosters, indien toepaslik, moet uitsluitlik van geskikte materiaal gemaak wees wat, volgens 6.12 getoets, as korrosiebestand beskou word. Indien vlekvrystaal egter gebruik word, moet dit van AISI-graad 304 wees en geld die vereiste vir korrosiebestandheid nie.
- (b) Die materiaal moet ondeurlatend vir vloeistof wees.
- (c) Die oppervlakke moet glad afgewerk wees en moet maklik skoongemaak kan word, en moet so wees dat blikkering afkomstig van die verligting voorkom word.
- (d) Om die indringing van mikroörganismes te voorkom, moet alle sweislasse, lasse, barste en splete in die werkruimte doeltreffend afgedig wees met nie-poreuse materiaal wat teen die meeste chemikalieë wat algemeen gebruik word, asook teen die normale ontsmettingsprosesse bestand is en wat nie sal bars of poreus raak nie.
- 3.4.2 *Binnehoeke*: Alle binnehoeke binne die werkruimte moet vry van barste en splete wees en moet so ontwerp wees dat dit skoonmaak vergemaklik.
- 3.4.3 *Kykvenster*:
- (a) Die werkvoorstel moet bestaan uit 'n paneel wat aan die vereistes van 3.3.3 voldoen en wat oopgemaak kan word om toegang tot die werkruimte te verleen.
- (b) Die kykvenster moet die voorste grens van die skoonlugomgewing vorm en mag nie die laminêre patroon van die lugvloei belemmer nie. Geen middele moet voorsien wees om die kykvenster oop te hou nie—dit moet toegaan wanneer dit gelos word en wanneer dit vasgemaak is, moet dit 'n gasdigte afdigting vorm.
- (c) Die grootte, posisie en hoek van die kykvenster moet so wees dat die operateur 'n onbelemmerde sig op die werkruimte het wanneer hy in die middel voor die kabinet sit.
- (d) By die toets van 'n kabinet volgens 6.5, mag geen afdigting om die bokant en sykant van die kykvenster 'n DOP-indringing van meer as 0,03 % hê nie.
- 3.4.4 *Werktoegangsopening (slegs klas I- en klas II-kabinette)*: Die rande van die werktoegangsopening moet so gevorm wees dat lugturbulensie by die ingang tot 'n minimum beperk word. Die vertikale afmeting van die opening moet in die bestek van 200–250 mm wees.
- 3.4.5 *Deksel van werktoegangsopening (slegs klas I- en klas II-kabinette)*: 'n Deksel wat oor die werktoegangsopening pas, moet voorsien wees om die kabinet tydens dekontaminasie af te dig. Die deksel moet sonder beskadiging van die buitedop bevestig en afgedig kan word om 'n gasdigte afdigting te vorm.
- 3.4.6 *Werkruimteverligting*:
- (a) Die werkruimte moet verlig word met fluoresseerlampe wat voldoen aan die vereistes van SABS 1041–1975 'Buisfluoresseerlampe vir algemene gebruik', gepubliseer by Goewermentskennisgewing No. 463 van 9 Julie 1982. Die lampe en bybehore moet buite die werkruimte wees. Vervanging en instandhouding van die lampe en bybehore moet van buite die kabinet geskied.
- (b) Volgens 6.2 bepaal, moet die gemiddelde illuminansie by die werkoppervlak minstens 1 000 lux (1 000 lumen per vierkante meter) wees.
- (c) Alle beheerinrigtings moet van buite die kabinet toeganklik wees sonder om aan die integriteit van die plenums of biogeveiligheidsversperrings afbreuk te doen. Beheerinrigtings moet so gemonteer wees dat die kabinet te alle tye gasdig bly en geen lug na die atmosfeer uitlek nie [kyk 3.3.1 (c)].
- 3.4.7 *Skerm*: 'n Skerm of skerm moet op die terugvloeiugspruitstuk aangebring wees om te voorkom dat enige los materiaal uit die werkruimte gesuig word en in die motorgedrewe blaser(s) of die filterhulsels beland. Die skerm(s) moet in posisie inknip sonder dat dit bevestig hoef te word. Die afwerking van die skerm moet glad wees om skoonmaak en ontsmetting te vergemaklik.

- 3.4.8 *Ultraviolet lampe:* Ultraviolet lampe mag **nie** as integrerende dele van die kabinet geïnstalleer word nie.
- 3.4.9 *Gastoebehore:*
- (a) Indien die werkruimte van klas I- en klas II-kabinette voorsien is van 'n toevoer van vlambare gas (bv. vir bunsenbranders), moet hierdie toevoer beheer word deur middel van 'n solenoïedklep wat gas net laat vloeï wanneer die motorgedrewe blasers aangeskakel is.
 - (b) Om plofgevaar te verminder, moet die solenoïedklep so wees dat dit na enige onderbreking van die elektriese stroom weer met die hand ingestel moet word.
 - (c) Klas III-kabinette mag **nie** van gastoebehore voorsien wees nie.
 - (d) Slegs bunsenbranders wat gebruik maak van laeprofieltipe mikrobranders met 'n vlamhoogte wat outomaties na aansteekvlam of die afposisie terugkeer wanneer die vlam nie vereis word nie, mag in die kabinet gebruik word aangesien hulle die minste versteuring van lugvloei patrone veroorsaak.
- 3.5 LUGFILTERS.
- 3.5.1 *Hersirkuleertoevoer- en uitlaatfilters:*
- 3.5.1.1 *Filtertipes:* Alle filters moet HEPA-filters wees met 'n volumetriese tempo (lugvloei tempo), gespesifiseer deur die fabrikant van die filter, wat minstens gelyk is aan of groter is as die maksimum wat nodig is vir die toepaslike deel van die kabinet. By die toets van 'n filter volgens 6.4 by die fabrikant se ontwerp- volumetriese tempo, mag die DOP-indringing van die filter nie 0,03 % oorskry nie. Manometers moet voorsien wees om die drukval oor die filters te monitor.
- 3.5.1.2 *Filterraam:*
- (a) 'n Filter moet 'n raam hê wat gemaak is van korrosiebestande materiaal of materiaal wat teen korrosie beskerm is. By die toets van die filterraam vir 24 uur volgens 6.12, mag dit geen teken van korrosie toon nie.
 - (b) Die filterraam moet so gemaak wees dat dit die uitwerking van druk en meganiese spanning waaraan dit tydens die normale lewensduur daarvan onderwerp kan word, kan deurmaak.
 - (c) Indien filterskeiers gebruik word, mag hulle, volgens (a) hierbo getoets, geen teken van korrosie toon nie.
- 3.5.1.3 *Filterafdigtings en afdigmateriaal:* Geïnstalleerde filters moet so afdig wees dat daar geen lug- of gaslekke om die afdigtings voorkom nie. By die toets van 'n filter volgens 6.4, mag die DOP-indringing van die afdigting nie 0,03 % oorskry nie.
- Die filter mag **nie** met gom of stolmiddels in posisie bevestig wees nie.
- 3.5.1.4 *Toegang tot filters en monsternemingsopeninge:*
- (a) Toegang moet voorsien wees om versiening en die bepaling van die integriteit van filters en afdigtings te vergemaklik.
 - (b) Indien nodig, moet monsternemingsopeninge vir 100%-verwysingskonsentrasies DOP-toets-aërosol voorsien wees vir elke positiewedruk-plenum vir HEPA-filters, en die openinge moet deur middel van 'n buis met 'n binnediameter van minstens 15 mm met toeganklike posisies in die negatiewedruk-plenum verbind wees.
 - (c) Elke monsternemingsopening moet voorsien wees van 'n afdig dop. Buisse en doppe mag nie deur die buitedop van die kabinet dring nie.
- 3.5.1.5 *Filterafdigplate:* Afdigplate moet vir die inlaat (indien toepaslik) sowel as die uitlaatopening voorsien wees om berokking en ontsmetting te vergemaklik. Indien hierdie plate voorsien word om die filters af te dig, moet hulle buite oor die filters aangebring word en moet hulle doeltreffende afdigting bied om te verseker dat die filters ook tydens berokking ontsmet word.
- 3.5.1.6 *Beskerming:* 'n Verwyderbare geperforeerde skerm moet in die uitlaatopening voorsien wees om die HEPA-filter teen meganiese beskadiging te beskerm en moet so geplaas wees dat die uitlating van lug nie belemmer word nie.
- 3.5.2 *Voorfilters:* Om die lewensduur van die filters te verleng, moet 'n geskikte voorfilter met 'n aanvanklike terughouding, volgens 6.13 bepaal, van 90 % voor (stroomop van) elke HEPA-filter aangebring wees. Hierdie voorfilter mag nie die prestasie van die HEPA-filter benadeel nie.
- 3.5.3 *Geaktiveerde koolstoffilter:*
- (a) Indien organiese gifstowwe en nie-korroderende vlugtige organiese stowwe gebruik gaan word, moet 'n geaktiveerde koolstoffilter na (stroomaf van) die HEPA-uitlaatfilter in die kabinet aangebring wees en mag dit glad nie die uitlaatlugvloei belemmer of die prestasie van die HEPA-filter benadeel nie.
 - (b) Die massa van die geaktiveerde koolstof moet toereikend wees om die chemiese kontaminant(e) tot onder die veiligheidsvlak uit die uitlaatlug te filtreer.

(c) Die koolstoffilter moet gereedlik toeganklik wees vir maklike versiening, instandhouding en vervanging (kyk 3.3.4). 'n Kennisgewing waarin die tipe absorbeerfilter wat aangebring is en die datum van installering of versiening duidelik vermeld word, moet aan die voorkant van die kabinet of beheerpaneel aangebring wees.

(d) Indien koolstoffilters gebruik word, moet die lug in die kabinet na die buiteatmosfeer uitgelaat word.

3.6 MOTORGEDREWE BLASERS.

3.6.1 *Tipe en beheer:* 'n Enkelmotorgedrewe blaser wat regstreeks aangedryf word en wat van 'n reëlbare spoedkontrole voorsien is, moet op die kabinet aangebring wees.

3.6.2 *Blaseraanlag en -prestasie:* Volgens 6.7 getoets, met 'n toename in positiewe druk van minstens twee maal dié van 'n HEPA-filter-skoonlugstelsel daarop aangelê, moet die blaser minstens 30 minute lank 'n lugvloeiensnelheid van $0,475 \pm 0,025$ m/s kan volhou.

3.7 UITLAATSTELSEL.

(a) Die kabinet moet so gemaak wees dat die lug daarin na die buiteatmosfeer uitgelaat kan word. Die uitlaatstelsel moet so wees dat lug nie in die kabinet in kan terugvloei nie.

(b) Indien nodig, kan 'n bykomende lugdigte uitlaatleigang wat so kort moontlik, maar nie langer as 3 m is nie, gebruik word.

(c) Indien die gebruik van 'n kort leigang nie moontlik is nie, moet 'n afsonderlike, bykomende motorgedrewe blaser so na moontlik aan die buite-uitlaatlent van die uitwendige uitlaatleigang aangebring word, en 'n vingerhoed tipe opvanger (kyk Fig. 1) moet by die aansluiting tussen die kabinetleigang en die uitwendige uitlaatleigang gebruik word. Die uitwendige blaser moet so ingestel wees dat oormatige uitsuiging te alle tye verseker word.

(d) Die luguitsuigstelsel moet uitwendige windtoestande en leigangweerstande kan hanteer. Fabrikante moet maksimum toelaatbare uitwendige weerstande teen lugvloei spesifiseer.

(e) Die leigang moet voorsien wees van 'n outomatiese terugblaaswerende stelsel wat na (stroom-af van) die uitlaatlent aangebring is om te voorkom dat lug in die kabinet in terugvloei, veral wanneer die waaier afgeskakel is. Terugblaaswerende kleppe moet so gemaak wees dat die klepbeddings maklik ondersoek en skoongemaak kan word. Die inwendige komponente moet altyd sigbaar wees. Enige mikroskakelaars of ander elektriese komponente of kontroles moet buite die leigang wees.

3.8 ELEKTRIESE DIENSTE.

3.8.1 *Bedrading:* Elektriese bedrading moet afgeskerm wees van regstreekse blootstelling aan moontlike ultraviolet straling en moet een van die volgende wees:

(a) Bedrading moet polivinielchloried(PVC)-isolering wat voldoen aan SABS 150-1970 'Elektriese kables en buigsame koorde met polivinielchloried(PVC)-isolering', gepubliseer by Goewermentskennisgewing No. 463 van 9 Julie 1982 en gewysig by Goewermentskennisgewing No. 355 van 20 Mei 1983 en Goewermentskennisgewing No. 6 van 3 Januarie 1986; of

(b) rubbergeïsoleerde bedrading wat voldoen aan SABS 168-1978 'Rubbergeïsoleerde kables en buigsame koorde', gepubliseer by Goewermentskennisgewing No. 463 van 9 Julie 1982.

Bedrading wat oor die grense van gekontameneerde gebiede gaan, moet veranker wees en moet gasdig gemaak wees met nie-poreuse afdigmiddels wat nie sal bars of poreus raak nie. Elektriese komponente en bedrading, uitgesonderd die blasermotor(s) en die bybehorende bedrading, mag nie binne die gekontameneerde lugsones geplaas wees nie. Alle bedrading en elektriese komponente binne die skoonluggebied van die werkruimte moet so meganies bevestig wees dat geen turbulensie geskep word nie.

Kleefband mag nie vir vashegting of ombinding gebruik word nie.

3.8.2 *Kontroles:* 'n Kontroleomhulsel moet 'n integrerende deel van die kabinet uitmaak en moet 'n kontrolepaneel bevat. Die omhulsel moet 'n deksel hê wat volle toegang tot die verbindinge en bedrading van die paneel verleen. 'n Leesbare bedradingsdiagram moet permanent aan die binnekant van die deksel bevestig wees. Alle kontroles wat deur die operateur gestel kan word, moet duidelik sigbaar wees en moet maklik toeganklik vir die operateur wees wanneer hy in die middel voor die werktoegangsopening sit. Alle werkkontroles en elektriese komponente binne die kontroleomhulsel moet op permanente wyse gemerk wees.

3.9 *GERAASPEILE:* By die toets van 'n kabinet volgens 6.8, mag die geraaspeil van die kabinet, terwyl dit in werking is, nie 65 dB(A) oorskry nie.

3.10 *VIBRASIE:* By die toets van 'n kabinet volgens 6.3, mag die vibrasiesnelheid op geen vlak van enige werkoppervlak terwyl die kabinet in werking is 'n WGK-waarde in die frekwensiebestek van 10-250 Hz hê wat 0,7 mm/s oorskry nie.

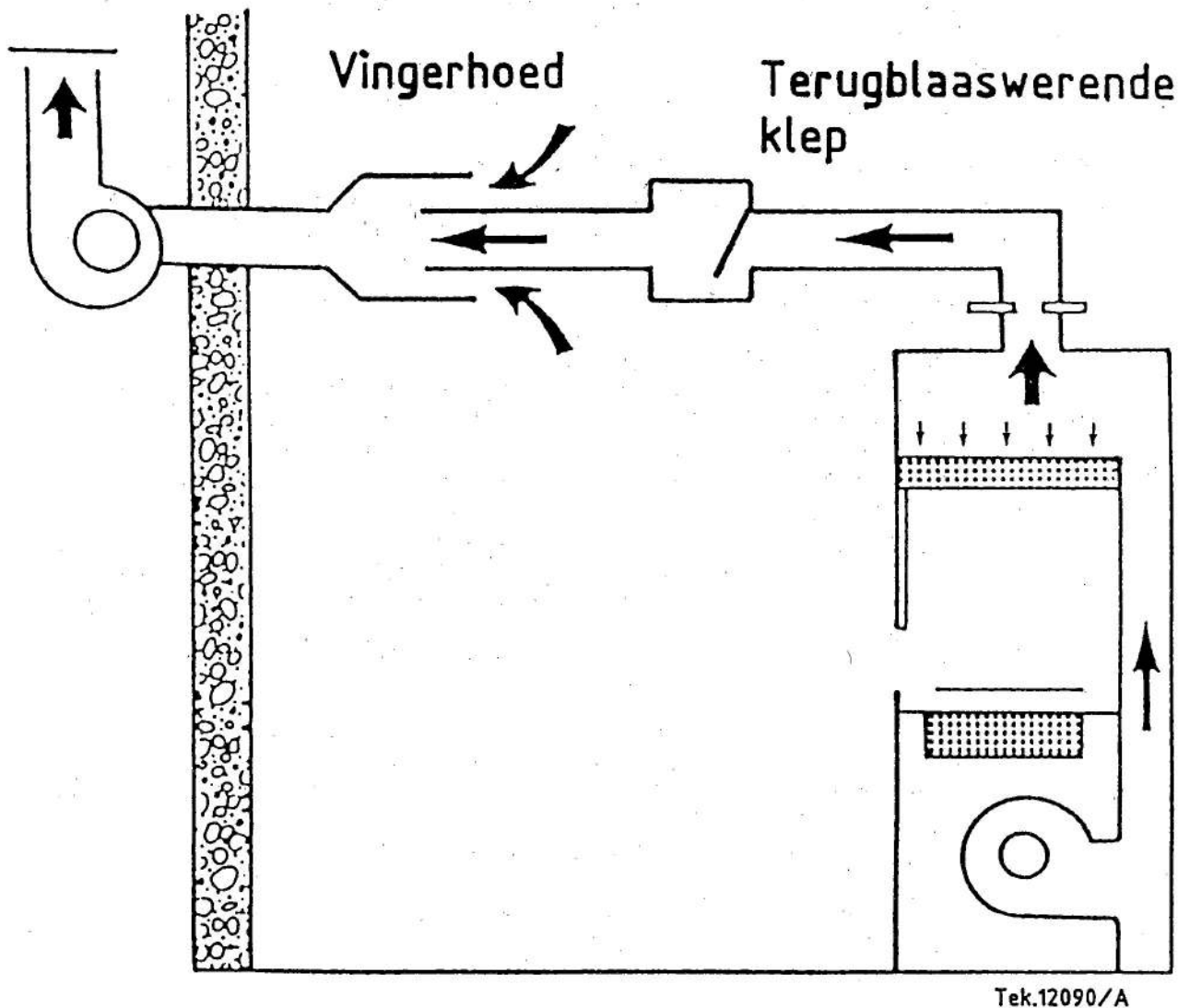


Fig. 1 - Voorbeeld van 'n vingerhoedtype uitlaatstelsel wat gebruik word om kabinetuitlaat- sowel as laboratoriumlug uit te laat

3.11 **MERKE:** Die toepaslike van die volgende besonderhede, in ooreenstemming met die klas kabinet, moet leesbaar en onuitwisbaar op 'n opvallende plek op die voorkant van elke kabinet aangebring wees:

(a) Die aanwysing, d.w.s. —

- (1) "Biologiese veiligheidskabinet klas I—Beskerm personeel teen enige gewone mikrobiologiese partikels"; of
- (2) "Biologiese veiligheidskabinet klas II—Beskerm personeel en produk teen gewone mikrobiologiese partikels"; of
- (3) "Biologiese veiligheidskabinet klas III—Beskerm die produk sowel as personeel en die omgewing teen spesiale en uiters gevaarlike mikrobiologiese partikels";

(b) die fabrikant se naam;

(c) die totale volume van die kabinet;

(d) die woorde "WAARSKUWING: Moet nie vlambare of plofbare en hoogs vlugtige vloeistowwe in hierdie kabinet gebruik nie".

4. **SPESIFIEKE VEREISTES.**

4.1 **KLAS I-KABINETTE.**

4.1.1 **Algemeen:**

4.1.1.1 Die kabinet moet 'n selfstandige eenheid wees wat minstens 'n werkruimte, voorfilters, HEPA-filters en 'n blaser vir HEPA-gefiltreerde uitlaatlug bevat. 'n Geaktiveerde koolstoffilter kan ook ingesluit wees vir die hantering van organiese giftowwe en nie-korroderende vlugtige organiese stowwe.

- 4.1.1.2 Die kabinet moet 'n onafhanklike werkeenheid wees en moet onafhanklik van enige ander lugsirkuleerstelsel werk.
- 4.1.1.3 Die uitlaatopening kan in enige rigting wys, mits dit geredelik toeganklik is.
- 4.1.1.4 Die werkvoorstel van die werkruimte moet 'n kykvenster insluit, asook 'n werktoegangsopening waardeur lugvloei na binne volgehou word.
- 4.1.1.5 Alle kontroles wat met die kabinet verband hou, moet 'n intergrerende deel van die kabinet uitmaak.
- 4.1.1.6 Ten einde potensieel gevaarlike materiaal binne die kabinet te hou, moet die plenum wat die potensieel gevaarlike materiaal bevat, onder 'n negatiewe druk met betrekking tot die druk in die werkkamer/omgewing gehou word.

'n Klas I-kabinet mag onder **geen** omstandighede opgegradeer word om aan die vereistes van 'n klas III-kabinet te voldoen nie.

- 4.1.2 *Werkvloer:* Die werkvloer moet stewig, plat en in een stuk gemaak wees en moet geronde hoeke hê om skoonmaak en ontsmetting te vergemaklik. Die voorraad van die vloer moet 'n keerlip met 'n minimum hoogte van 10 mm hê vir die keer van vloestof wat in die kabinet gestort is.
- 4.1.3 *Vloei en verspreiding van lug deur die werktoegangsopening:* Die kabinet moet so ontwerp wees dat die snelheid van die lug wat deur die werktoegangsopening invloei, binne die gespesifiseerde grense bly op die plekke wat hieronder aangegee word.

Volgens 6.6 bepaal en minstens 1 minuut lank op minstens vyf plekke, naamlik by die geometriese middelpunt van die opening en by elke van die vier hoeke daarvan gemeet met die middelpunt van die meettoestel 50–55 mm van die rand van die opening af, moet die lugsnelheid in die bestek van 0,7–1,0 m/s wees.

4.2 KLAS II-KABINETTE.

4.2.1 *Algemeen:*

- 4.2.1.1 Die kabinet moet 'n selfstandige eenheid wees wat minstens 'n werkruimte, voorfilters, HEPA-filters en 'n blaser vir HEPA-gefiltreerde eenrigtinglugvloei (laminêre lugvloei) en HEPA-gefiltreerde uitlaatlug bevat. 'n Geaktiveerde koolstoffilter kan ook ingesluit wees vir die hantering van organiese giftowwe en nie-korroderende vlugtige organiese stowwe.
- 4.2.1.2 Die kabinet moet 'n onafhanklike werkeenheid wees en moet onafhanklik van enige ander lugsirkuleerstelsel werk.
- 4.2.1.3 Die uitlaatopening kan in enige rigtings wys, mits dit geredelik toeganklik is.
- 4.2.1.4 Die werkvoorstel van die werkruimte moet 'n kykvenster insluit, asook 'n werktoegangsopening waardeur lugvloei na binne volgehou word.
- 4.2.1.5 Alle kontroles wat met die kabinet verband hou, moet 'n integrerende deel van die kabinet uitmaak.
- 4.2.1.6 Ten einde potensieel gevaarlike materiaal binne die kabinet te hou, moet alle gekontamineerde sones wat onder positiewe lugdruk is, omring wees deur sones wat onder negatiewe druk met betrekking tot die druk in die werkkamer/omgewing gehou word.

- 4.2.2 *Werkvloer:* Die werkvloer moet stewig wees, mag nie bevestig wees nie en moet maklik opgelig kan word, maar moet 'n stand- en posisiebevestigingstelsel hê, sowel as stelsels om te voorkom dat installering verkeerdom geskied. Die werkvloer kan solied of geperforeer wees. Indien die werkvloer solied is, moet dit 'n keerlip met 'n minimum hoogte van 10 mm om die omtrek daarvan hê vir die keer van vloestof wat in die kabinet gestort is. Alle hoeke van die vloer moet gerond wees om skoonmaak en ontsmetting (kyk 3.4.2) te vergemaklik.

- 4.2.3 *Opvanger:* Die opvanger, wat die basis van die onderste lugplenum uitmaak, moet waterdig wees en alle lasse moet gesweis, glad geskuur en afgewerk wees. Die grootte van die opvanger moet sodanig wees dat dit vloestof tot 'n minimum diepte van 10 mm kan hou. Alle hoeke van die vloer van die opvanger moet gerond wees om skoonmaak en ontsmetting (kyk 3.4.2) te vergemaklik. Enige versperings of hegstukke moet so aangebring wees dat hulle vry is van barste en splete wat skoonmaak en ontsmetting kan benadeel.

4.2.4 *Vloei en verspreiding van lug:*

- 4.2.4.1 *Hersirkuleer- en sperlug:* Lug moet in een rigting (laminêr) deur HEPA-filters deur die werkruimte hersirkuleer sodat ongekontamineerde lug vir beskerming van die produk voorsien word.

'n Lugversperring moet oor die volle breedte van die werktoegangsopening tussen die werkruimte en die kamer geskep word deurdat atmosferiese lug (kamerlug) afwaarts in die opvanger ingevoer word.

- 4.2.4.2 *Snelheid en eenvormigheid van lugvloei in die werkruimte:*

(a) Volgens 6.6 bepaal, moet die gemiddelde snelheid van die laminêre lugvloei minstens 0,45 m/s en hoogstens 0,50 m/s wees. Snelheidsaflesings op verskillende plekke in die werkruimte moet gelyk aan die gemiddelde syfer wees, behoudens 'n toleransie van $\pm 20\%$.

(b) By die toets van 'n kabinet volgens 6.11, mag daar hoogstens vyf organismes op die plate van elk van die ses replikatoetse aanwesig wees, wat minimum kruiskontaminasie en derhalwe aanneemlik eenvormige lugvloei aandui.

4.2.4.3 *Integriteit van lugversperring:*

(a) By die toets van 'n kabinet volgens 6.5 en 6.10, mag DOP-aërosol en bakteriespore wat om die buite omtrek van die werktoegangsopening vrygelaat word en op die lugversperring gerig word, nie die werkruimte binnedring nie.

(b) Volgens 6.9 getoets, moet die kabinet 'n beskermingsfaktor van minstens 10^5 hê.

(c) Indirek as uitlaatlugvloeiensnelheid volgens 6.6 gemeet, moet die gemiddelde snelheid van die lug wat na binne deur die werktoegangsopening vloei, minstens 0,4 m/s wees.

(d) Die rooktoets volgens 6.5.3 (d) uitgevoer, moet toon dat lug oor die hele werktoegangsopening na binne vloei.

Opmerking: Die eweredige instelling van die hoeveelhede sperlug en die laminêre lugvloei is van kritieke belang vir die prestasie van die kabinet.

4.2.4.4 *Uitlaatlug:* 'n Hoeveelheid lug wat gelyk is aan die hoeveelheid sperlug moet deur die uitlaatfilter uit die kabinet uitgelaat word.

4.3 KLAS III-KABINETTE.

4.3.1 *Algemeen:*

4.3.1.1 Die kabinet moet 'n selfstandige eenheid wees wat minstens 'n werkruimte, voorfilters, HEPA-filters en 'n blaser vir HEPA-gefiltreerde inlaat- en uitlaatlug bevat. Voorsiening moet gemaak word om te voorkom dat gekontamineerde lug deur die luginlaat terugvloei, deur die aanbring van 'n HEPA-inlaatfilter wat ook 'n toevoer van steriele lug lewer om die binnekant te deurspoel en kontaminasie van die materiaal wat hanteer word, te voorkom. 'n Geaktiveerde koolstoffilter kan ook in die uitlaatluggeleide ingesluit wees vir die hantering van organiese giftowwe en nie-korroderende vlugtige organiese stowwe.

'n Klas I-kabinet mag onder **geen** omstandighede opgegradeer word om aan die vereistes van 'n klas III-kabinet te voldoen nie.

4.3.1.2 Die kabinet moet 'n onafhanklike werkeenheid wees en moet onafhanklik van enige ander lugsirkuleerstelsel werk. Volgens 6.1 getoets, moet 'n kabinet gasdig wees.

4.3.1.3 Die uitlaatoening kan in enige rigting wys, mits dit geredelik toeganklik is.

4.3.1.4 Die werkvoorstel van die werkruimte moet 'n kykvenster en 'n afgedigte versperring insluit wat die operateur van die werkruimte skei. Hierdie versperring moet voorsien wees van handskoene wat aaneenloop met die versperring en die buitedop van die kabinet en wat die operateur in staat stel om materiaal binne die kabinet te hanteer.

4.3.1.5 Alle kontroles wat met die kabinet verband hou, moet van buite die kabinet beheer word.

4.3.1.6 Ten einde potensieel gevaarlike materiaal binne die kabinet te hou, moet die binnekant van die kabinet altyd onder 'n negatiewe druk met betrekking tot die druk in die werkkamer/omgewing gehou word. 'n Manometer met 'n bestek van 0–500 Pa moet buite die kabinet gemonteer wees om 'n visuele aanduiding van die druk van die inwendige negatiewedruk-plenum te gee.

4.3.2 *Handskoenopeninge:* Manipulasie binne die werkruimte moet geskied deur middel van handskoenopeninge wat ook as oorplasingsoeninge of vir die bevestiging van oorplasingssakke kan dien. Om hierdie rede moet 'n prop wat inwendig of uitwendig aangebring kan word om die opening doeltreffend en volkome af te dig, vir elke opening voorsien wees.

4.3.2.1 *Handskoenopeningsamestel:*

(a) Die handskoenopeningsamestel moet op permanente wyse aan die voorpaneel van die kabinet vasgesweis, met klinknaels daaraan bevestig of daaruit uitgepers wees, of deur middel van hegstukke met afdigpakkies aan die voorpaneel van die kabinet aangebring wees.

(b) Die handskoenopeningsamestel moet aan al die fisiese en chemiese vereistes voldoen wat in 3.3 vir die buitedop van die kabinet gespesifiseer word.

(c) Die afmetings van die handskoenopeningsamestel moet so wees dat dit voorsiening maak vir die aanbring van standaard tipe spanrandkaphandskoene, wat op die handskoenkompartement pas en in die handel beskikbaar is, sonder oormatige spanning op die rand van die handskoen. Die fabrikant moet die gepaste handskoenkapdiameter of -fatsoen vir die spesifieke openinggrootte spesifiseer.

(d) Die buitekant van die openingring moet voorsien wees van twee groewe om die spanrandkap van die handskoen en 'n sekondêre handskoen te akkommodeer sodat handskoene omgeruil kan word sonder om aan die afdigting afbreuk te doen.

(e) Doeltreffende middele moet vir die afdigting van die handskoenopeningsamestel voorsien wees om te verseker dat die handskoenopeninge heeltemal afgedig kan word sodat die kabinet berook kan word.

4.3.2.2 Handskoene (kaphandskoene):

(a) Die handskoene moet albei hande ewe goed pas en moet spanrandkappe hê wat saambruikbaar is met die diameter en fatsoen van die handskoenoeninge.

(b) Handskoene moet gemaak wees van deursigtige materiaal wat sodanig is dat beskadiging van die handskoene maklik raakgesien kan word.

(c) Die handskoene moet maklik van buite die kabinet vervang kan word deur die ou handskoene na die binnekant van die kabinet te druk en 'n nuwe handskoene aan te bring terwyl die blaser nog aan die gang is.

4.3.3 Filters: Die inlaat- sowel as die uitlaatfilters van 'n klas III-kabinet moet HEPA-filters wees en moet almal van dieselfde grootte en spesifikasie wees. Die fabrikant se ontwerp volumetriese tempo (lugvloeitempo) moet gelyk wees aan die maksimum wat vir die kabinet nodig is, of dit oorskry. By die toets van 'n filter volgens 6.4 by die fabrikant se ontwerp volumetriese tempo (lugvloeitempo), mag die DOP-indriging van die filter nie 0,03 % oorskry nie.

4.3.4 Vloei en verspreiding van lug:

4.3.4.1 Lugvloei: Volgens 6.6 bepaal, moet die lugvloei snelheid voldoende wees om te verseker dat daar 'n lugvloei snelheid van minstens 0,75 m/s deur die openinge is as alle handskoene afgehaal is. Die lugvloei deur die inlaatfilter moet minstens 3 m³/min. wees as die handskoene aangebring is.

4.3.4.2 Kabinetlugdruk: Elke inlaatfilter en elke uitlaatfilter moet groot genoeg wees om die gespesifiseerde lugvloei (minstens 3 m³/min. deur die inlaatfilter) deur te laat by 'n negatiewe druk van 200 Pa in die kabinet, wat die minimum werkdruk moet wees.

4.3.5 Werkvloer: Die werkvloer moet stewig, plat en in een stuk gemaak wees, met geronde hoeke om skoonmaak en ontsmetting te vergemaklik.

4.3.6 Oorplasingkamer: 'n Oorplasingkamer kan aan die kabinet aangebring wees sodat bonkige artikels in die kabinet oorgeplaas kan word. Die oorplasingkamer, indien een aangebring is, moet van geskikte grootte wees, met deure wat groot genoeg vir die betrokke artikels is, en moet aan die kant van die kabinet aangebring wees.

Die oorplasingkamer moet 'n naatlose gasdigte eenstukkamer wees, met geronde hoeke om skoonmaak te vergemaklik. By die toets volgens 6.1 van 'n oorplasingkamer wat aan die kabinet aangebring is, mag die nate en lasse van die deur en van die kamer geen teken van gaslekke toon nie. Alle materiaal wat vir die konstruksie van die kamer gebruik word, moet aan die vereistes van 3.3.1 voldoen. Die kamer moet voorsien wees van inlyn-HEPA-filters en geskikte riefpuntaaldkleppe sodat die kabinet gedeeltelik lugleeg gemaak kan word, indien nodig.

5. INSTALLERING VAN 'N KLAS I-, KLAS II- OF KLAS III-KABINET.

5.1 Die kabinet of die komponente daarvan moet op so 'n wyse vervoer en geïnstalleer word dat beskadiging van enige deel van die kabinet voorkom word en dat die integriteit van die kabinet verseker word. Na installering moet die kabinet aan al die vereistes van die spesifikasie voldoen, en die toepaslike van die toetse in Afdeling 6 moet uitgevoer word om te verseker dat die kabinet aan die toepaslike prestasie- en veiligheidsvereistes voldoen.

6. TOETSMETODES.**6.1 BEPALING VAN GASDIGTHEID VAN BUITEDOP (KLAS III-KABINETTE).**

6.1.1 Beginsel: Die kabinet word afgedig en onder positiewe druk geplaas met dichloordifluoormetaangas. Alle oppervlakke en lasse word met die aftaster van 'n detektor vir gaslekke ondersoek.

6.1.2 Apparaat:

(a) 'n *Gasdetektor* wat ingestel en gekalibreer is om die verlies aan dichloordifluoormetaangas by 'n verwysingslekbron teen 'n maksimum tempo van 14 g per jaar te bespeur.

(b) 'n *Manometer* met skaalindelings van hoogstens 25 Pa en wat drukwaardes in die bestek van 200–300 Pa kan registreer.

(c) 'n *Silinder dichloordifluoormetaangas* (in die handel beskikbaar as 'n koelmiddel, Freon 12), met 'n reguleerklap, spuitstuk en verbindingslang.

6.1.3 Prosedure:

(a) Berei die kabinet voor vir toetsing as 'n geslote stelsel, d.w.s. dig alle openinge soos die uitlaatopening, verwyderbare panele en ander openinge af. Haal alle uitwendige deksels af wat nie noodsaaklik vir die werking van die kabinet is nie.

(b) Bevestig die manometer aan die toepaslike toetsdeel van die kabinet om binnedruk aan te dui.

(c) Verbind die gassilinder op geskikte wyse met die toetsdeel en stel die gas vry sodat die binnekant van die kabinet onder 'n positiewe druk van 250 ± 5 Pa geplaas word.

(d) Stel die sensitiwiteit van die gasdetektor in volgens die fabrikant se aanwysings.

(e) Beweeg die aftaster van die instrument oor die nate, lasse, utiliteitsopeninge, pakstukke en ander plekke waar lekkasie moontlik kan voorkom, deur die aftaster 7–12 mm van enige oppervlak af te hou en dit teen 'n tempo van ongeveer 0,013 mm/s te beweeg.

6.1.4 *Beoordeling:* Beskou die kabinet as gasdig indien daar op geen plek 'n gaslek opgespoor word wat groter as 14 g per jaar is nie.

6.2 BEPALING VAN ILLUMINANSIE.

6.2.1 *Beginnel:* Illuminansiemetings word by 'n gespesifiseerde werkvlak gedoen op plekke wat na willekeur gekies is.

6.2.2 *Apparaat:* 'n Gekalibreerde kosinus- en siggekorregerde illuminansiemeter waarvan die bestek sodanig is dat die illuminansie wat gemeet word, by minstens een vyfde van die volskaalwaarde is.

6.2.3 *Prosedure:*

(a) Laat die lampe in die kabinet minstens twee uur lank werk.

(b) Meet op agt plekke wat na willekeur gekies is, die illuminansie op 'n hoogte van hoogstens 25 mm bo die oppervlak van die werkvloer en teken die resultaat aan wat op elke plek verkry is.

6.3 VIBRASIEBEPALING.

6.3.1 *Beginnel:* Vibrasiesnelheidsmetings word met 'n eenvoudige vibrasiemeter op uitgesoekte plekke gedoen terwyl die kabinet in werking en nie in werking is nie, sodat die vibrasiepeile in hierdie twee toestande vergelyk kan word. Bepaling van die netto vibrasie, d.w.s. dié wat slegs aan die kabinet toegeskryf kan word, sal ontleding van vibrasiefrekwensie vereis.

6.3.2 *Apparaat:* 'n Vibrasiemeter wat bestendigestaat-vibrasiesnelhede in die bestek van 0,05–0,5 mm/s (WGK) in die frekwensiebestek van 10–250 Hz kan meet, behoudens 'n toleransie van $\pm 10\%$.

6.3.3 *Prosedure.*

6.3.3.1 *Toetsplekke:*

(a) *Op die horisontale voor-na-agter-as:* Om vibrasiesnelheidsmetings op die horisontale voor-na-agter-as te doen, heg die voelelement stewig aan die middelpunt van die voorrand van die werkvloer vas.

(b) *Op die horisontale sy-tot-sy-as:* Om vibrasiesnelheidsmetings op die horisontale sy-tot-sy-as te doen, heg die voelelement stewig aan die middelpunt van die (linker- of regter-) kant van die werkvloeroppervlak vas.

6.3.3.2 *Meting:*

(a) Maak seker dat die lugvloei is soos gespesifiseer (kyk 4.1.3, 4.2.4 of 4.3.4.1, soos toepaslik) en dat die kabinet minstens 10 minute lank normaal werk voordat enige metings gedoen word.

(b) Met die voelelement soos in 6.3.3.1 (a) geplaas en vasgeheg, en met die kabinet in werking soos in (a) hierbo, meet die bruto vibrasiesnelheid en teken dit aan.

(c) Skakel die meganiese en elektriese stelsels af, meet die vibrasiesnelheid wat deur omgewingstoestande teweeggebring word en teken dit aan.

(d) Met die voelelement soos in 6.3.3.1 (a) geplaas en vasgeheg, en met die kabinet in werking soos in (a) hierbo, doen weer metings soos in (b) en (c) hierbo.

Opmerking: Die vibrasiefrekwensiekomponente van die omgewingsvibrasie verskil gewoonlik heelwat van dié van die kabinet se meganiese stelsel en daarom is herleiding van die netto WGK-snelheid (dié wat aan die skoonkabinet-toerusting toegeskryf kan word) van metings van bruto en omgewingsvibrasie nie noodwendig 'n eenvoudige wiskundige aftrekking nie.

6.4 BEPALING VAN DIE INTEGRITEIT VAN DIE FINALE FILTERINSTALLASIE EN FILTERPRESTASIE.

6.4.1 *Beginnel:* 'n Polidispersie-aërosol by kamertemperatuur word teen 'n gespesifiseerde vloeitempo aan die stroomopkant van die HEPA-filterinstallasie ingevoer en die hele oppervlak aan die stroomafkant van die filterbank word met 'n aftassuigstuk afgetas om die persentasie indringing te bepaal.

6.4.2 *Apparaat:*

(a) 'n *Anemometer*, noukeurig tot binne $\pm 2\%$.

(b) *DOP-generator.* 'n Generator wat van geskikte spuitstukke voorsien is en wat saamgeperste stikstofgas by 140 ± 14 kPa gebruik, met die vrylugvloei ingestel op minstens 30 l/min. per spuitstuk. Die DOP moet by kamertemperatuur gebruik word en mag nie verhit word nie.

Opmerking: Besonderhede van 'n geskikte spuitstuk kan van die Suid-Afrikaanse Buro vir Standaardtegniek verkry word.

(c) *Aërosolfotometer*: 'n Ligverstrooitipe massakonsentrasie-aanwyser met 'n aftassuigstuk. Fotometers met 'n drumpelsensitiwiteit van minstens 10^{-3} g/l vir DOP-partikels met 'n diameter van $0,3 \mu\text{m}$, wat konsentrasies in die bestek van 80–120 g/l kan meet, is geskik. Die toetsfotometer moet 'n monstervloeitempo van $30 \pm 3 \text{ l/min}$. hê. Die aftasterinlaat moet groot genoeg wees om die aftasterinlaattempo by 'n toetsvloei van $27,5 \text{ l/min}$. (of effens hoër) deur die filter te hou.

6.4.3

Prosedures:

(a) Gebruik die anemometer om seker te maak dat die lugvloei deur die filterbank binne die werkgrense van die kabinetontwerpvloei is (kyk 4.1.3, 4.2.4.2 of 4.3.4.1, soos toepaslik). Maak seker dat die kabinet normaal werk terwyl hierdie prosedure uitgevoer word. Bepaal lugvloei volgens die metode in 6.7.

(b) Reguleer die generatordruk tot $140 \pm 14 \text{ kPa}$ met 'n minimum vrylugvloei deur die generator van 30 l/spuitstuk per minuut.

(c) In die geval van fotometers met –

(1) 'n lineêre aflesing, bepaal die stroomopkonsentrasie deur die kleinste hoeveelheid DOP-aërosol in in te voer wat nodig is om 'n 100%-aflesing te verkry, sodat die instrument strooiligingestel kan word op nul op die laagste skaalbestek wanneer alle aërosol uit die monsterlugstroom gefiltreer is;

(2) 'n logaritme-aflesing, stel die stroomopkonsentrasie (soos aan die hand van die instrumentkalibrasiekromme bepaal) in deur die kleinste hoeveelheid DOP-aërosol in te voer wat nodig is om 'n konsentrasie te verkry van 1×10^4 bo die konsentrasie wat nodig is om 'n aflesing van een skaalindeling te verkry. Vermyn langdurige blootstelling van filters aan DOP.

(d) Tas die hele filterbank af deur die aftaster daarvoor te beweeg met hale wat effens oorvleuel, sodat 'n monster van die hele filtergebied geneem word. Voer afsonderlike aftashale teen 'n bewegingstempo van hoogstens 5 cm/s uit om die hele omtrek van die filterbank, langs die verbindings tussen die filters en hul rame en om die afdigting tussen die filterbank en die kabinet. Teken enige lokale dele of punte aan waar 'n aflesing van meer as 0,03 % verkry word.

6.5 METODE VIR DIE OPSPORING VAN LEKKASIES NA DIE WERKRUIMTE, EN BEWYSLEWERING VAN DIE INTEGRITEIT VAN DIE KABINET, DIE LUGVERSERRING EN DIE LUGFILTER.

6.5.1 *Beginnel*: Die omgewing van alle konstruksielasse wat aan die werkruimte grens en alle openinge na die werkruimte word ondersoek terwyl luggegeneerde DOP-rook op 'n las in die omgewing van die werkruimte of op die werktoegangsoening (lugversperring) gerig word. Metings word met 'n aërosolfotometer gedoen om enige toename vergeleke met die filtervoervlakaflesing te bepaal.

Meteraflesings wat 'n indringing van 0,03 % oorskry, dui op laslekkasie of terugstroming.

6.5.2 *Apparaat:*

(a) 'n *Aërosolfotometer* soos in 6.4.2(c).

(b) 'n *DOP-generator* soos in 6.4.2(b).

6.5.3 *Prosedure:*

(a) Gebruik die aërosolfotometer om die omgewings-DOP-peil van die kamer en die werkruimte van die kabinet te meet. Indien die aflesing minder as 10^3 bo die filtervoervlakaflesing vir die aërosolfotometer is, rig die DOP-rook op die omgewingskant (uitwendige kant) van die las of werktoegangsoening terwyl die kabinet normaal werk en die lyf van die operateur minstens 200 mm weg is van die buiterande van die gebied wat ondersoek word.

(b) Gebruik die fotometer om alle konstruksielasse wat aan die werkruimte grens, af te tas deur die aftastersuigstuk binne die kabinet, hoogstens 25 mm weg van die las af te hou en teen hoogstens 5 cm/s met die las langs te beweeg.

(c) Beskou enige oop deurgang van die werkruimte na die omgewingskant (uitwendige kant) of by die binnerand van 'n hersirkuleergleuf of by die las tussen kabinetoppervlakke en 'n afsluitpaneel as 'n opening. Tas die omtrek van alle openinge na die werkruimte af deur die aftastersuigstuk binne die werkruimte, hoogstens 50 mm weg van die opening of hoogstens 25 mm weg van die oppervlakke af te hou. Tas die hele omtrek van die opening teen hoogstens 5 cm/s af.

Teken enige fotometeraflesing wat 'n DOP-indringing van 0,03 % met betrekking tot die 100 % wat stroomop gemeet is, oorskry en die plek waarop dit geneem is, aan.

(d) Voer hierbenewens 'n eenvoudige rooktoets uit om die rigting van die lugvloei naby die werktoegangsoening te bepaal. Genereer DOP- of enige ander rook aan die omgewingskant (uitwendige kant) van die opening sodat die rookwolk binne 150 mm van die totale oppervlakte van die opening af is. Let op die rigting van die lugvloei.

6.6 BEPALING VAN SNELHEID EN EENVORMIGHEID VAN LUGVLOEI.

6.6.1 *Beginnel*: Lugvloei snelheidsaflesings word met 'n anemometer op uitgesoekte plekke geneem en die gemiddelde van die aflesings word dan bereken.

6.6.2 *Apparaat:*

(a) 'n *Anemometer*, tot binne $\pm 2 \%$ noukeurig.

(b) *Manometer*: 'n Vloeistofge vulde skuinsbuismanometer of soortgelyke manometer met skaalindeling van hoogstens 25 Pa.

6.6.3 Procedure:

(a) Maak seker dat die kabinet normaal werk. Neem snelheidsaflesings op 'n vlak parallel met en ongeveer 150 mm na (stroomaf van) die HEPA-filters of 150 mm van die plafon van die kabinet af, en teken dit aan.

(b) Neem snelheidsaflesings op tussenafstande van 200–225 mm in albei rigtings deur te begin op 'n plek 75–100 mm van die binnerand van die werkoppervlak af sodat een aflesing geneem word by elke kruising van 'n denkbeeldige vierkantige rooster waarvan die totale afmetings met dié van die werkoppervlak ooreenstem. Teken hierdie snelheidsaflesings aan.

(c) Gebruik die manometer om die drukval oor die filterstelsel te meet, en teken dit aan.

(d) Gebruik die anemometer om ook die snelheid van die uitlaatlug by die uitlaat van die leigang te bepaal, en teken dit aan.

6.6.4 Verslag: Sluit die volgende besonderhede in die verslag in:

(a) Die drukval oor die filterstelsel.

(b) Elke snelheidsaflesing en die plek waarop dit geneem is. Die snelheid van die uitlaatlug is gelyk aan die snelheid van die inlaatlug (sperlug of voorvlaklug).

(c) Die gemiddelde van die snelheidsaflesings wat geneem is.

(d) Maksimum en minimum snelheidsaflesings.

(e) Persentasie afwyking van die gemiddelde van die maksimum en minimum aflesings.

6.7 BEPALING VAN LUGVLOEISNELHEID IN BELASTE FILTERTOESTANDE (TOETS VAN MOTORGEDREWE BLASER).

6.7.1 Beginsel: Die lugvloeisnelheid word bepaal nadat skoon filters aangebring is en weer nadat die bykomende beperkende toestel aangebring is om 'n toename in die lugvloeiweerstand gelyk aan twee maal die drukval oor 'n skoon filterstelsel na te boots. Volgehoue lugvloeisnelheid toon dat die vermoë van die motorgedrewe blaser toereikend is.

6.7.2 Apparaat:

(a) *Beperkende toestel.* Weerstandsmateriaal wat bygevoeg word om 'n toename in die drukval te verkry wat gelyk is aan minstens twee maal die drukval oor die skoon filters.

(b) 'n *Anemometer* soos in 6.6.2(a).

(c) 'n *Manometer* soos in 6.6.2(b).

6.7.3 Procedure:

(a) Met die motorgedrewe blaser van die kabinet in werking, meet die lugvloeisnelheid soos in 6.6, teken dit aan en stel dit op die gespesifiseerde waarde in. Maak seker dat voorfilters en finale HEPA-filters skoon is vir hierdie toets.

(b) Bring die manometer aan die stroomopkant van die finale HEPA-filters(s) aan, meet die drukval na die stroomafkant van die filters(s) en teken dit aan.

(c) Installeer die beperkende toestel.

(d) Meet die drukval van die belaste stelsel, teken dit aan en verstel die beperkende toestel, indien nodig, om die gespesifiseerde toename in drukval te verkry.

(e) Meet die lugsnelheid soos in 6.6 en teken dit aan.

(f) Maak seker dat die blaser die gespesifiseerde lugsnelheid minstens 30 minute lank by die verhoogde drukval volhou.

6.7.4 Verslag: Sluit die volgende besonderhede in die verslag in:

(a) Die gespesifiseerde lugvloeisnelheid met skoon filters;

(b) die drukval oor die finale filterstelsel met albei filters in 'n skoon toestand;

(c) die drukval oor gekombineerde filters en wanneer die beperkende toestel in posisie is;

(d) die lugvloeisnelheid wanneer die beperkende toestel in posisie is.

6.8 BEPALING VAN GERAASPEIL.

6.8.1 Beginsel: Geraaspeile word in werktostande op uitgesoekte plekke naby 'n kabinet gemeet en die agtergrondomgewingstostande word ook aangeteken, indien nodig.

6.8.2 Apparaat:

(a) *Klankpeilmeter*: 'n Klankpeilmeter wat voldoen aan die prestasie-eienskappe en noukeurighedsvereistes van minstens 'n tipe I-instrument soos aangegee in onderafdeling 4.1 van SABS 083-1983 'Die meet en beoordeling van arbeidsgeraas vir gehoorbehoudoeleindes', gepubliseer by Goewermentskennisgewing No. 356 van 20 mei 1983.

(b) *Kalibrasiebron*: 'n Akoestiese bron wat vir gebruik saam met die klankpeilmeter ontwerp is en wat 'n enkelfrekwensieklanklewering het waarvan die amplitude by die temperatuur en barometerdruk waarby die kalibrasie nagegaan is, tot binne 0,3 dB bekend is.

6.8.3 Prosedure:

(a) Maak seker dat die kabinet normaal werk. Meet die geraaspeil met die meter 0,3 m vanaf die werktoegangsopening, sowel as 0,3 m bokant die borand van die werktoegangsopening of, 1 m vanaf enige ander deel van die kabinet, met inbegrip van die leigange en uitlaatpunt van die uitsuigstelsel, indien een aangebring is, en teken dit aan.

(b) Maak seker dat die lugvloei van die kabinet is soos gespesifiseer. Doen alle metings met die klankmeter so ingestel dat die A-beswaarde net en vinnige responsie gebruik word. Gebruik die akoestiese kalibreerder om die prestasie van die klankpeilmeter na te gaan voordat sowel as nadat metings gedoen word, en veronagsaam die resultate indien die twee prestasiewaardes nie tot binne 1,0 dB ooreenstem nie.

6.8.4 Verslag: Sluit die volgende besonderhede in die verslag in:

- (a) Alle werkgeraaspeilmettings en die plek waar dit gemeet is;
- (b) die geïdentifiseerde maksimum klankpeil en die plek waar dit gemeet is;
- (c) indien toepaslik, die omgewingsgeraaspeilmettings op plekke waar dit nodig is.

6.9 BEPALING VAN DIE BESKERMINGSFAKTOR IN DIE GEVAL VAN KLAS II-KABINETTE

6.9.1 *Beginsel*: Die beskermingsfaktor word omskryf deur die verhouding tussen die blootstelling aan luggedraagde kontaminasie wat op die oop bank gegenereer word, en die blootstelling wat die gevolg is van dieselfde verspreiding binne die kabinet.

(a) Die oorplasingsindeks omskryf die blootstelling wat by 'n gegewe punt ondervind word as $n(Ns)$, waar N die getal vrygestelde partikels is en n die getal partikels is wat teen 'n monsternemingstempo s herwin word as monsterneming voortgesit word totdat dit voltooi is. In 'n kamer met turbulente ventilasie wat deurgaans eenvormige vermenging tot gevolg het, is die oorplasingsindeks gelyk aan $1/V$, waar V die effektiewe volumetriese ventilasietempo is, met inbegrip van verlies weens afsakking. Die dimensie van die oorplasingsindeks is TL^{-3} , d.w.s. tyd/(lengte)³.

(b) Die verhouding tussen die oorplasingsindekse in die twee situasies is die beskermingsfaktor en is dimensieloos. In die geval van die oopbankverwysingstoestande word die kamerventilasie V as $10 \text{ m}^3/\text{min}$. beskou.

(c) Die beskermingsfaktor word dan $(Ns)/(10)$ as die monsternemingstempo s uitgedruk word in kubieke meter per minuut, of $(Ns)/(10^n)$, as s uitgedruk word in liter per minuut.

Ideaal gesien behoort daar geen ontsnapping uit 'n veiligheidskabinet te wees nie, n behoort nul te wees en die beskermingsfaktor behoort oneindig te wees. Geen kabinet met 'n oop voorkant sal egter algehele beskerming verleen nie en die maksimum waarde van die beskermingsfaktor wat beoordeel kan word, hang af van die sensitiwiteit van die toets, d.w.s. die konsentrasie van die toetssuspensie N , die grootte van die monsternemingstempo s , en die kleinste getal partikels wat herwin word en op betroubare wyse van agtergrondkontaminasie onderskei kan word. Praktiese waardes hiervoor is N minstens 3×10^8 , s minstens 50 l/min . en n hoogstens 10, wat 'n minimum bepaalbare waarde van minstens $1,5 \times 10^5$ vir die beskermingsfaktor gee.

(d) Ten einde verwarring met agtergrondkontaminasie te voorkom, moet die toetse uitgevoer word in 'n goed geventileerde kamer en moet dit voorafgegaan word deur 'n vooruitskatting van die agtergrondkontaminasie.

6.9.2 Materiaal en apparaat:

(a) *Spoorsuspensie*: 'n Suspensie van spore van *Bacillus subtilis* var globigii (SATCC BAC 35) in gedistilleerde water, gestandaardiseer sodat dit ongeveer 10^8 – 10^9 spore per milliliter bevat.

(b) *Kweekplate*: Petribakkies (met 'n diameter van 90 mm) wat 15–20 ml voedingsagar [kyk (e) hieronder] bevat.

(c) *Spleetipe lugmonsternemers*: Twee spleetipe lugmonsternemers wat elk teen tussen 25 l en 30 l lug per minuut werk.

(d) *Newelaar*: 'n Collison-newelaar wat ses straalstukke het, waarvan die binne-uitlaat 'n diameter van 14 mm het, en wat vanaf 'n druklyn by 70 kPa werk. Die newelaar spuit ongeveer 0,2 ml/min. en laat hoogstens 10 ml/min. vry lug teen 'n snelheid van 0,8 m/s uit.

(e) *Voedingsagar*: 'n Oplossing wat soos volg opgemaak is:

Agar	15,0 g
Peptoon	10,0 g
Biefekstrak	5,0 g
Natriumchloried	5,0 g

Los die bestanddele in verhitte water op en vul tot 1 l aan. Stel die pH-waarde op 7,2 in. Meet 15-ml-volumes in bottels af en steriliseer 20 minute lank in 'n outoklaaf by 121 °C.

(f) *Silinder*: 'n Silinder met 'n lengte en diameter van onderskeidelik ongeveer 1 m en 60–65 mm, wat 'n gladde oppervlak het en aan albei ente toe is.

6.9.3

Prosedure:

(a) Steek die silinder deur die werktoegangsopening van die kabinet om die lugvloei te verstuur (om die operateur se arm na te boots). Plaas die silinder in die middel tussen die sywande en loodreg op die vlak van die opening, sodat dit vanaf die agterkant van die werkruimte tot minstens 250 mm in die kamer in strek. Lig die onderste oppervlak van die silinder tot tussen 65 mm en 75 mm bo die werkvloer.

(b) Plaas die newelaar in die werkruimte met die uitlaat of toepaslike verlenging daarvan hoogstens 100 mm agter die vlak van die opening en na die opening toe gerig, met die spuitas parallel met die werkoppervlak. Maak seker dat die spuitas gelyk met die borand van die opening is.

(c) Plaas twee spleettipe lugmonsternemers buite die kabinet voor die opening, met die inlate daarvan hoogstens 200 mm voor die vlak van die opening. Maak seker dat die inlate gelyk met die bokant van die silinder is, die een regs en die ander links, en elk hoogstens 150 mm van die as van die silinder af.

(d) Maak seker dat die kabinet normaal werk. Stel die monsternemers in werking 30 sekondes voordat die newelaar in werking gestel word en laat hulle vyf minute lank aanhou werk nadat die newelaar afgeskakel is. Stel elke monsternemer in op 'n monsternemingstempo van minstens 25 l per minuut. Laat die newelaar minstens vier minute lank loop om die verspreiding van minstens 3×10^8 spore te verseker. Voer 'n kontrolebepaling uit deur die kabinetmotors af te skakel en die hele prosedure te herhaal.

(e) Bepaal die toetsdosis soos volg:

Voer voor die spuitprosedure 'n plaattelling uit op tienvoudige reeksoplossings van die spoor-suspensie. Herhaal die proses na afloop van die spuittydperk. Voer na die aanvanklike plaattelling die spuitprosedure uit deur 'n 5-ml-volume V van die spoor-suspensie noukeurig uit te meet en dit vir die toets in die newelaar te plaas. Bepaal die massa van die newelaar (W_1). Bepaal weer die massa van die newelaar (W_2) nadat daar gespuut is, en berei tienvoudige verdunnings van die oorblywende spoor-suspensie in die newelaar, waarvan die volume ($V + W_2 - W_1$) minstens die helfte ($V/2$) van die oorspronklike volume moet wees. Voer voor en na die spuitprosedure 'n plaattelling op die verdunningsreeks uit, inkubeer die plate 24–48 uur lank by 37 °C en tel die kolonies op elke plaat wat 100–300 kolonies na inkubasie bevat.

Bereken aan die hand van hierdie tellings die konsentrasie spore in die aanvanklike suspensie (n_1/ml) en in die finale suspensie (n_2/ml).

(f) Die toetsdosis word dan aangegee as:

$$N - n_2(W_1 + W_2) - (n_2 - n_1)V$$

(g) Voer hierdie prosedure minstens vyf maal uit. Elke lopie moet 'n beskermingsfaktor van minstens 10^5 gee [kyk 6.9.1 (c)].

(h) Herhaal prosedure (b), (c) en (d) hierbo, maar plaas die inlate van die spleettipe lugmonsternemers voor die *uitlaat-opening*. Neem 'n monster van die lug terwyl die kabinet in werking is en terwyl die kabinet afgeskakel is. Voer hierdie prosedure vyf maal uit. Elke lopie mag hoogstens vyf bykomende kolonies toon op die plate van monsters wat tydens die werking van die kabinet geneem is by vergelyking daarvan met die plate van monsters wat geneem is nadat die kabinetmotors afgeskakel is. (Voer kontrolebepalings op monsters van die omgewingslug uit.)

6.10 TOETS VIR UITWENDIGE KONTAMINASIE.

6.10.1 *Beginnel*: die integriteit van die lugversperring by die werktoegangsopening word aangedui deur die meting van die indringing na binne van bakteriespore wat by die opening ingespuut word. Terwyl die kabinet normaal werk, mag hoogstens vyf spore die werkruimte binnedring.

6.10.2 *Materiaal en apparaat*: Soos in 6.9.2 (die spleettipe lugmonsternemers is nie nodig nie).

6.10.3 *Prosedure:*

- (a) Plaas die silinder in die kabinet soos in 6.9.3 (a).
- (b) Versprei minstens 12 kweekplate (petribakkies met 'n diameter van 90 mm) eweredig oor die werkvloer van die kabinet.
- (c) Plaas die newelaar buite die kabinet, met die uitlaatopening van die newelaar 100 mm voor die middelpunt van die borand van die werktoegangsopening. Die spuitas moet parallel met die vlak van die werkvloer wees en moet na die binnekant van die kabinet gerig wees.
- (d) Maak seker dat die kabinet normaal werk. Maak die kweekplate een minuut voor die aanvang van die spuitprosedure oop en bedek hulle weer vyf minute na die beëindiging van die spuitprosedure. Laat die newelaar minstens vier minute lank loop om die verspreiding van 'n toetsdosis van minstens 3×10^6 spore te verseker.
- (e) In enige toets mag die getal kolonies toetsorganismes wat na 'n inkubasietydperk van 24–28 uur by 37 °C getel word, nie 5 oorskry nie. Voer die toets vyf maal uit.
- (f) Voer 'n kontroletoets uit terwyl die motorgedrewe blaser(s) van die kabinet afgeskakel is. Minstens 300 kolonies moet tydens elke toets van hierdie plate herwin word.

6.11 TOETS VIR KRUISKONTAMINASIE.

6.11.1 *Beginnel:* Bakteriespore word oor die werkruimte gespuit en kontaminasie van die teenoorstaande twee derdes van die kabinet word gemoniteer.

6.11.2 *Apparaat en materiaal:* Soos in 6.9.2 (die spleettipe lugmonsternemers is nie nodig nie).

6.11.3 *Prosedure:*

- (a) Plaas die silinder in die kabinet soos in 6.9.3 (a).
- (b) Versprei minstens 12 kweekplate (petribakkies met 'n diameter van minstens 90 mm) eweredig oor die regterkantse twee derdes van die werkvloer van die kabinet en minstens 350 mm van die linkerkant af.
- (c) Plaas die newelaar met sy spuitas 100 mm bo die werkvloer en 50 mm van die linkerkant af. Maak seker dat die spuitas parallel met die vlak van die werkvloer is en dat dit gerig is in die rigting van die wand waar die kweekplate geplaas is.
- (d) Maak seker dat die kabinet normaal werk. Maak die kweekplate een minuut voor die aanvang van die spuitprosedure oop en bedek hulle weer vyf minute na die beëindiging van die spuitprosedure. Laat die newelaar minstens vier minute lank loop om die verspreiding van 'n toetsdosis van minstens 10^5 spore te verseker.
- (e) In enige toets mag die getal kolonies toetsorganismes wat na 'n inkubasietydperk van 24–48 uur by 37 °C getel word, nie 5 oorskry nie. Voer die toets drie maal uit.
- (f) Voer die toetsprosedure in (a)–(e) hierbo nog drie maal met omgekeerde posisies uit (d.w.s. met die kweekplate aan die linkerkant en die newelaar aan die regterkant geplaas).
- (g) Voer 'n kontroletoets uit terwyl die motorgedrewe blaser(s) van die kabinet afgeskakel is. Minstens 300 kolonies moet tydens elke toets van hierdie plate herwin word.

6.12 TOETS VIR KORROSIEBESTANDHEID: Volg SABS-metode 155-1975 'Soutmisbestandheid van verflae', gepubliseer by Goewermentskennisgewing No. 463 van 9 Julie 1982.

6.13 VOORFILTERTOETSE: Volg die toetsmetodes in SABS 1424-1987 'Filters vir lugversorging en algemene ventilasie', gepubliseer by Goewermentskennisgewing No. 1878 van 4 September 1987.

SCHEDULE**PROPOSED COMPULSORY SPECIFICATION FOR BIOLOGICAL SAFETY CABINETS (CLASSES I, II AND III)**1. **SCOPE.**

1.1 This specification covers requirements for the construction, fittings, installation and performance of three classes (Classes I, II and III), of biological safety cabinets intended to protect both the operator and the environment from the hazards of dangerous microbiological materials and (if so required) organic toxins and non-corrosive volatile organic agents.

Note: Biological safety cabinets are not intended as protection against corrosive chemicals or radio-active materials.

1.2 The specification does not cover the actual design of a safety cabinet and shall in no way restrict new design, provided that a biological safety cabinet of new design complies with the requirements for materials, reliability, performance and safety given in this specification.

Note: Safety cabinets of Classes I, II and III must not be confused with laminar flow clean workstations that usually discharge horizontally and vertically towards the operator and that not only provide no operator protection, but may even increase exposure to airborne hazards.

2. DEFINITIONS.

2.1 For the purposes of this specification the following definitions shall apply:

Accessible: Able to be exposed for proper and thorough cleaning and visual inspection, with the use of simple tools such as a screwdriver, pliers or an open-end wrench (spanner).

Barrier air (face air): Atmospheric air sucked from the room environment through the work-access aperture of the cabinet, creating an air barrier across the aperture, through which particles cannot escape from the cabinet into outside atmosphere.

Cabinet: A biological safety cabinet of Class I, II or III, as applicable.

Cleanable (clean): Accessible and of such material and finish and so manufactured that soil may be removed effectively by normal cleaning methods.

Construction: The manufacture, assembly of subunits (where applicable) and installation of the biological safety cabinet.

Disinfection (decontamination): The removal or inactivation of infectious agents or the removal or neutralizing of toxic agents.

DOP: Di-octylphthalate aerosol.

Enclosed: Having no openings large enough to permit insects or rodents to enter.

Hazard, biohazard, or hazardous materials: Infectious agents presenting a real or potential risk to the well-being of persons, animals or plants, either directly through infection or indirectly through contamination of the environment.

HEPA-filter: A high efficiency particulate air filter.

Readily accessible (easily accessible): Easily exposed for proper and thorough cleaning and visual inspection, without the use of any tool.

Readily removable: Capable of being taken away from the main unit, without the use of any tool.

Removable: Capable of being taken away from the main unit, with the use of simple tools such as a screwdriver, pliers or an open-end wrench (spanner).

Resistant: Descriptive of materials that maintain their original surface characteristics under conditions other than those intended for normal use.

Sealed: Having no openings that will allow the entry or leakage of water or gas.

Smooth: Having a surface free from pits and inclusions.

Toxic: Descriptive of agents that have an adverse physiological effect on biological systems.

Toxins: Agents that have an adverse physiological effect on biological systems.

Work space: That part of the interior of the cabinet, within which manipulation of the hazardous material may safely be carried out.

3. GENERAL REQUIREMENTS.

3.1 CLASS: A cabinet shall be of one of the following classes:

- (a) **Class I:** A partially enclosed cabinet that is so constructed that air flows inwards away from the operator, the exhaust air being filtered through a HEPA-filter before being discharged from the cabinet. The cabinet provides protection for personal and the environment against minimally hazardous agents, i.e. at risk levels associated with agents that present minimal or no danger to persons, animals or plants, provided the usual precautions in handling microbiological materials are observed.

Note: Class I cabinets are designed to reduce the exposure of laboratory staff and the environment to airborne dispersal of microbiological material during work procedures. These cabinets shall not be used as, or confused with, fume cupboards which are intended for chemical procedures.

- (b) **Class II:** A partially enclosed cabinet that is so constructed that the work space is flushed with a clean, filtered unidirectional flow of air and the escape of particles from the work space is prevented by means of an inward flow of air through the work-access aperture. The cabinet provides protection for personnel and the environment against ordinary or potentially hazardous microbiological agents, i.e. at risk levels associated with agents that cause disease in persons, animals or plants and that can be contained by normal microbiological techniques. The level of competence required of personnel handling material in these cabinets should be that expected of personnel formally trained as microbiologists.

Note: Class II cabinets are designed to reduce the exposure of laboratory staff and the environment to airborne dispersal of infectious materials during work procedures, and at the same time to control airborne contamination that might be detrimental to the experiment.

- (c) *Class III:* A totally enclosed, ventilated cabinet of gastight construction that is so constructed that the operator is separated from the work by a physical barrier and that the work space is so flushed with air under negative pressure that the escape of particles from the work space is highly unlikely. The cabinet provides protection for personnel and the environment against special and extremely hazardous microbiological agents, i.e. at risk levels associated with agents that are highly infectious or toxic to persons, animals and plants, and that can cause dangerous disease, or at risk levels associated with agents that cause genetic mutations or that may have a synergistic effect with other materials.

The level of competence required of personnel handling material in these cabinets should be that expected of personnel formally trained as microbiologists and who have also received proper training in the handling of extremely dangerous agents.

Note: Class III cabinets are designed to minimize the exposure of laboratory staff and the environment to airborne dispersal of extremely infectious material during work procedures, and at the same time to control airborne contamination that might be detrimental to the experiment.

3.2 DIMENSIONS.

- 3.2.1 *External dimensions:* The overall dimensions of a cabinet excluding the readily removable parts, shall be such that it can pass through a standard single doorway of nominal height and width 2,0 m and 0,78 m, respectively, the door opening off a corridor of width 1,5 m.
- 3.2.2 *Work space dimensions:* In the case of Class I and II cabinets, the width of the work space shall not exceed 1 900 mm and the depth shall be in the range 500–700 mm. The height of the work space shall be at least 550 mm. The volume of the work space shall be not less than 0,2 m³ and not more than 0,75 m³.

3.3 OUTER SHELL (MAIN STRUCTURE)—MATERIALS AND CONSTRUCTION

3.3.1 *General:*

(a) A cabinet shall be constructed of materials that are deemed to be corrosion resistant when tested in accordance with 6.12. however, if stainless steel is used, it shall be of AISI Grade 304 and the requirement for corrosion resistance shall not apply.

(b) The materials shall be impermeable to liquids.

(c) There shall be no cracks and surface defects, including those leading to ineffective mating with gasket surfaces or other sealing devices. All structural joints that are not welded shall be sealed with non-porous materials that are not liable to crack or to become porous. The structural strength of any joint or connection of the cabinet or any of its panels shall be independent of the seal produced by the gasket or sealing material.

- 3.3.2 *Stability:* The point of instability of the main structure shall not be reached by the application of lateral forces of up to 250 N or by the application of a downward force of up to 50 N on the front edge of the cabinet. The exhaust air duct shall not be used to provide stability.

In the case of a cabinet structure that does not provide this degree of stability, provision shall be made for clamping or bolting the cabinet to the floor or wall.

- 3.3.3 *Windows:* Windows shall be of laminated glass that complies with the performance requirements of SABS 1263 'Safety and security glazing materials for buildings', Part II—1987 'Burglar-resistant and vandal-resistant glazing materials', published by Government Notice No. 141 of 5 February 1988, or of other suitable transparent materials that are resistant to ultraviolet rays and have a performance factor equal to or better than that required for the laminated glass.

Note: Laminated safety glass of thickness 6 mm normally complies with this requirement.

- 3.3.4 *Access panels:* Removable access panels shall be provided for the maintenance or removal (or both) of filters, blowers, motors, lighting, electrical components and plumbing. When panels or covers are in place, the sealing of the access panels or covers shall prevent leakage of contaminated air to the surrounding atmosphere. Physical means to position and support large access panels or covers shall be provided to facilitate safe fitting and removal.
- 3.3.5 *Tracks and guides:* All tracks and guides for doors, windows, covers and access panels shall be so constructed and installed as to minimize the collection of foreign matter and to facilitate cleaning.

3.4 WORK SPACE—MATERIALS AND CONSTRUCTION.

3.4.1 *General:*

(a) The work space, excluding the viewing window but including the sump and grills, where applicable, shall be constructed entirely of suitable materials that, when tested in accordance with 6.12, are deemed to be corrosion resistant. However, if stainless steel is used, it shall be of AISI Grade 304 and the requirement for corrosion resistance shall not apply.

(b) The materials shall be impermeable to liquids.

(c) The surfaces shall be smoothly finished and easy to clean, and shall be such the glare from the lighting is avoided.

(d) In order to prevent penetration by micro-organisms, all welds, joints, cracks and crevices in the work space shall be effectively sealed with non-porous material that is resistant to most commonly used chemicals and the normal disinfecting processes, and that is not liable to crack or to become porous.

3.4.2 *Internal corners and angles:* All internal corners and angles in the work space shall be free from cracks and crevices and shall be designed to facilitate cleaning.

3.4.3 *Viewing window:*

(a) The work face shall consist of a panel that complies with the requirements of 3.3.3 and that can be opened to allow access to the work space.

(b) The viewing window shall form the front boundary of the clean air environment and shall not disrupt the laminar pattern of air flow. No means shall be provided for holding the viewing window in an open position—it shall close on release and, when secured, shall form a gastight seal.

(c) The size, position and angle of the viewing window shall be such as to provide the operator with a clear view into the work space when he is seated centrally in front of the cabinet.

(d) When a cabinet is tested in accordance with 6.5, all seals around the top and sides of the viewing window shall have a DOP penetration not exceeding 0,03 %.

3.4.4 *Work-access aperture (Class I and II cabinets only):* The edges of the work-access aperture shall be so formed as to minimize air turbulence at the entry. The vertical dimension of the aperture shall be in the range 200–250 mm.

3.4.5 *Work-access aperture cover (Class I and II cabinets only):* A cover to fit the work-access aperture shall be provided to seal the cabinet during decontamination. The cover shall be capable of being fixed and sealed to provide a gastight seal, without damage to the outer shell.

3.4.6 *Work space illumination:*

(a) The work space shall be illuminated by fluorescent lamps that comply with the requirements of SABS 1041–1975 'Tubular fluorescent lamps for general service', published by Government Notice No. 463 of 9 July 1982. The lamps and accessories shall be outside the work space. Replacement and maintenance of the lamps and accessories shall be carried out from the outside of the cabinet.

(b) When determined in accordance with 6.2, the average illuminance at the work surface shall be at least 1 000 lux (1 000 lumens per square metre).

(c) All control gear shall be accessible from the outside of the cabinet without the integrity of the plenums or biohazard safety barriers being affected. Control gear shall be so mounted that the cabinet at all times remains gastight and there is no air leakage into the atmosphere [see 3.3.1 (c)].

3.4.7 *Screens:* A screen or screens shall be provided on the return air manifold to prevent any loose material from being drawn from the work space into the motor blower(s) or the filter housings. The Screen(s) shall register in position without the need for fastening. The finish of the screen shall be smooth to facilitate cleaning and disinfection.

3.4.8 *Ultraviolet lamps:* Ultraviolet lamps shall **not** be installed as integral parts of the cabinet.

3.4.9 *Gas fittings:*

(a) If the work space of Class I and II cabinets is provided with a supply of flammable gas (e.g. for bunsen burners) this supply shall be controlled by means of a solenoid valve that allows gas to flow only when the motor blowers are switched on.

(b) in order to reduce the explosion hazard, the solenoid valve shall be such that it has to be manually reset after any interruption of the electric current.

(c) Class III cabinets shall **not** be supplied with gas fittings.

(d) Only bunsen burners using low profile type microburners with a level-control which automatically reverts to pilot flame or off-status when not required shall be used in the cabinet, since they produce the least disturbance of air flow patterns.

3.5 AIR FILTERS.

3.5.1 *Recirculating supply and exhaust filters:*

3.5.1.1 *Filter types:* All filters shall be HEPA-filters having a volumetric rate (air flow rate), specified by the manufacturer of the filter, at least equal to or exceeding the maximum necessary for the applicable part of the cabinet. When a filter is tested in accordance with 6.4 at the manufacturer's designed volumetric rate, the filter shall have a DOP penetration not exceeding 0,03 %. Manometers shall be provided to monitor the pressure drop across the filters.

3.5.1.2 *Filter frame:*

(a) A filter shall have a frame manufactured from corrosion-resistant material, or material protected from corrosion. When the filter frame is tested in accordance with 6.12 for 24 hours, it shall show no sign of corrosion.

(b) The filter frame shall be so constructed that it is capable of resisting the effects of pressure and mechanical stress to which it may be subjected during its normal working life.

(c) If filter separators are used, and are tested as in (a) above, they shall show no sign of corrosion.

3.5.1.3 *Filter seals and sealing materials:* Installed filters shall be so sealed that there is no leakage of air or gas around the seals. When a filter is tested in accordance with 6.4, the seal shall have a DOP penetration not exceeding 0,03 %.

The filter shall **not** be fixed in place by means of glues or solidifying agents.

3.5.1.4 *Access to filters and sampling ports:*

(a) Access shall be provided to facilitate servicing and determination of the integrity of filters and seals.

(b) Where necessary, sampling ports for 100 % datum concentrations of DOP challenge aerosol shall be provided for each HEPA-filter positive-pressure plenum, and the ports shall be connected by a tube of inside diameter at least 15 mm to accessible positions in the negative-pressure plenum.

(c) Each sampling port shall be provided with a sealing cap. Tubes and caps shall not penetrate the outer shell of the cabinet.

3.5.1.5 *Filter sealing plates:* Sealing plates for both the inlet (where applicable) and the exhaust opening shall be provided to facilitate fumigation and disinfection. Where these plates are provided to seal the filters, they shall be fitted externally over the filters and shall provide an effective seal, to ensure that the filters are also decontaminated during fumigation.

3.5.1.6 *Protection:* A removable perforated guard shall be provided in the exhaust opening to protect the HEPA-filter from mechanical damage and shall be so arranged that the discharge of air is not obstructed.

3.5.2 *Prefilters:* In order to extend the life of the filters, a suitable prefilter with an initial arrestance, when determined in accordance with 6.13, of 90 % shall be fitted upstream of each HEPA-filter. This prefilter shall not impair the performance of the HEPA-filter.

3.5.3 *Activated carbon filter:*

(a) When organic toxins and non-corrosive volatile organic agents are to be used, an activated carbon filter shall be fitted to the cabinet, downstream of the exhaust HEPA-filter, and it shall in no way restrict the exhaust air flow or impair the performance of the HEPA-filter.

(b) The activated carbon shall be of adequate mass to filter the chemical contaminant(s) from the exhaust air to below the safe level.

(c) The carbon filter shall be readily accessible for easy servicing, maintenance and replacement (see 3.3.4). A notice clearly stating the type of absorbence filter fitted and the date of installation or service shall be fixed to the front of the cabinet or control panel.

(d) When use is made of carbon filters, the air in the cabinet shall be exhausted to outside atmosphere.

3.6 MOTOR BLOWERS.

3.6.1 *Type and control:* A single-motor blower that is directly driven and fitted with variable speed control shall be fitted to the cabinet.

3.6.2 *Blower rating and performance:* When tested in accordance with 6.7 with a positive-pressure increase of at least twice that of a clean air HEPA-filter system imposed upon it, the blower shall be capable of maintaining an air flow velocity of $0,475 \pm 0,025$ m/s for at least 30 minutes.

3.7 EXHAUST SYSTEM.

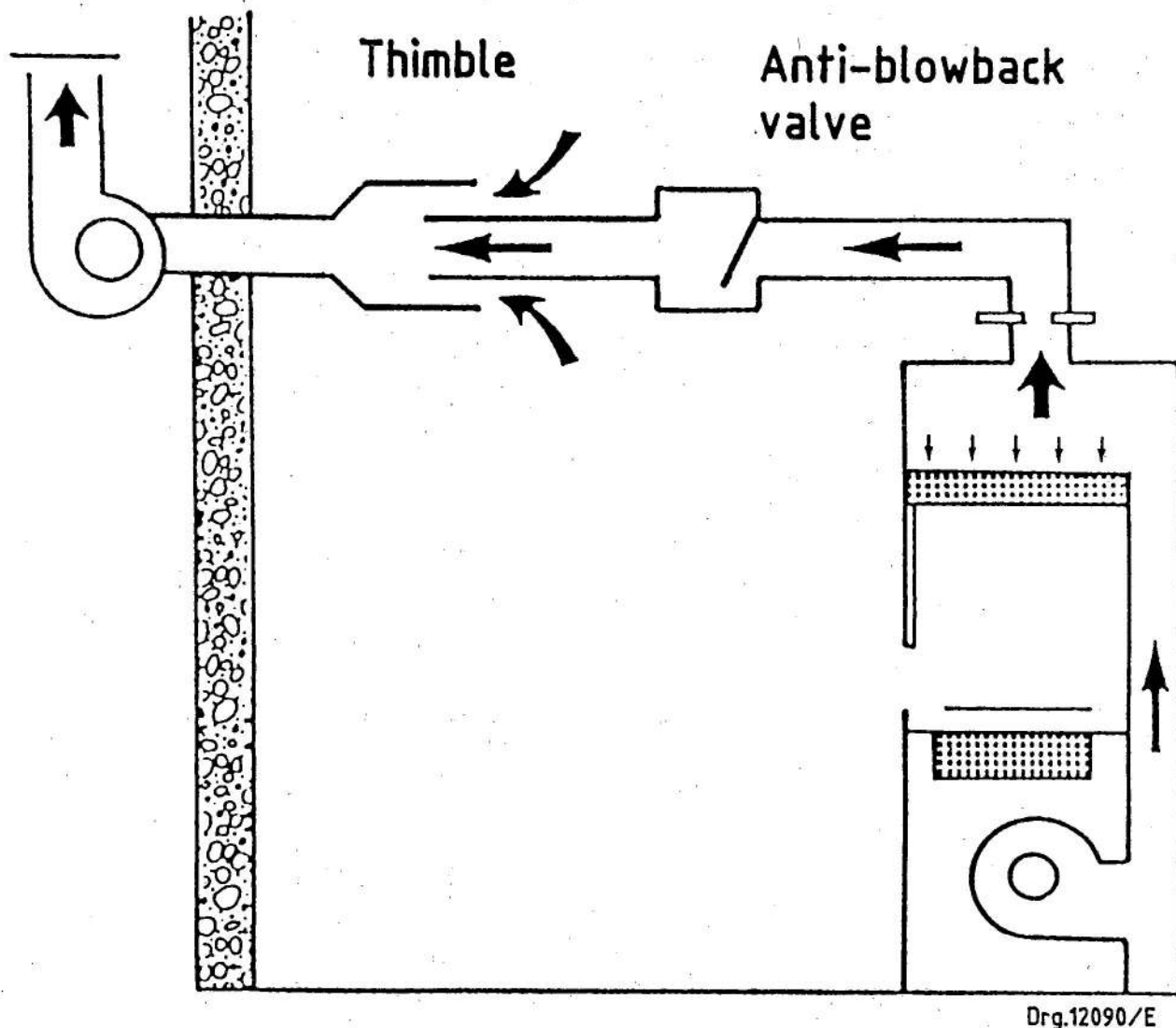
(a) The cabinet shall be so constructed that the air contained in it may be exhausted to outside atmosphere. The exhaust system shall be such that air cannot flow back into the cabinet.

(b) If necessary, an additional airtight exhaust duct of a length as short as possible but not exceeding 3 m, may be used.

(c) If the use of a short duct is not possible, a separate, additional motor blower shall be fitted as near as possible to the outside discharge end of the external exhaust duct, and a thimble type collector (see Fig. 1) shall be used at the junction between the cabinet duct and the external exhaust duct. The external blower shall be set to ensure excess extraction at all times.

(d) The air extraction system shall be capable of dealing with external wind conditions and duct resistances. Manufacturers shall specify maximum allowable external resistances to air flow.

(e) The duct shall be fitted with an automatic anti-blowback system downstream of the exhaust filters to prevent air flowing back into the cabinet, especially when the fan is switched off. Anti-blowback valves shall be so constructed that the valve seats can easily be inspected and cleaned. The internal components shall be visible at all times. Any microswitches or other electrical components or controls shall be outside the duct.



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Fig. 1 - Example of a thimble exhaust system used to discharge both cabinet exhaust and laboratory air

3.8 ELECTRICAL SERVICES.

3.8.1 *Wiring:* Electrical wiring shall be shielded from direct exposure to possible ultraviolet radiation, and shall be either—

- polyvinyl chloride (PVC)-insulated wiring that complies with SABS 150-1970 'Polyvinyl chloride (PVC)-insulated electric cables and flexible cords', published by Government Notice No. 463 of 9 July 1982 and amended by Government Notice No. 355 of 20 May 1983 and Government Notice No. 6 of 3 January 1986; or
- rubber-insulated wiring that complies with SABS 168-1978 'Rubber-insulated cables and flexible cords', published by Government Notice No. 463 of 9 July 1982.

Wiring that penetrates boundaries of contaminated areas shall be anchored and shall have been made gastight, using non-porous sealants that are not liable to crack or to become porous. Electrical components and wiring, other than the blower motor(s) and the associated wiring, shall not be located within the contaminated air zones. All wiring and electrical components within the clean air area of the work space shall be so mechanically secured that no turbulence will be created.

Adhesive tape shall not be used for fixing or looming.

- 3.8.2 **Controls:** A control enclosure shall form an integral part of the cabinet and shall contain a control panel. The enclosure shall have a cover providing full access to the connections and wiring of the panel. A legible wiring diagram shall be fixed permanently on the inside of the cover. All operator adjustable controls shall be clearly visible and easily accessible to the operator when he is seated centrally in front of the work access aperture. All operation controls and electrical components within the control enclosure shall be permanently marked.
- 3.9 **NOISE LEVELS:** When a cabinet is tested in accordance with 6.8, the noise level emitted by the cabinet during operation shall not exceed 65 dB(A).
- 3.10 **VIBRATION:** When a cabinet is tested in accordance with 6.3, the vibration velocity in any plane of any work surface during operation of the cabinet shall have an r.m.s value, in the frequency range 10–250 Hz, not exceeding 0.7 mm/s
- 3.11 **MARKING:** For each class of cabinet, the appropriate of the following information shall be prominently, legibly and indelibly displayed on the front of the cabinet:

(a) The designation, i.e. —

- (1) "Biological safety cabinet Class I—Protection for personnel against ordinary microbiological agents"; or
- (2) "Biological safety cabinet Class II—Protection for personnel and product against ordinary microbiological agents"; or
- (3) "Biological safety cabinet Class III—Protection for the product as well as for personnel and the environment against special and extremely hazardous microbiological agents";

(b) the manufacturer's name;

(c) the total volume of the cabinet;

(d) the words "WARNING: Do not use flammable or explosive and highly volatile liquids in this cabinet".

4. **SPECIFIC REQUIREMENTS.**

4.1 **CLASS I CABINETS.**

4.1.1 **General:**

- 4.1.1.1 The cabinet shall be a self-contained unit that includes at least a work space, prefilters, HEPA-filters and a blower for HEPA-filtered exhaust air. For handling of organic toxins and non-corrosive volatile organic agents, and activated carbon filter may also be included.
- 4.1.1.2 The cabinet shall be an independent operating unit and shall be independent of any other air-circulation system.
- 4.1.1.3 The exhaust outlet may face in any direction, provided that it is readily accessible.
- 4.1.1.4 The work face of the work space shall include a viewing window and a work-access aperture through which an inward flow of air is maintained.
- 4.1.1.5 All controls associated with the cabinet shall be integral parts of the cabinet.
- 4.1.1.6 In order to contain potentially hazardous materials within the cabinet, the plenum that contains potentially hazardous materials shall be maintained under a negative pressure relative to the pressure in the work room-environment.

Under *no* circumstances shall a Class I cabinet be up-graded to comply with the requirements of a Class III cabinet.

- 4.1.2 **Work floor:** The work floor shall be rigid, flat and constructed in one piece with radiused corners to facilitate cleaning and disinfection. The front edge of the floor shall have a retaining lip of minimum height 10 mm that serves to contain spillage of liquid within the cabinet.

- 4.1.3 **Flow and distribution of air through the work-access aperture:** The cabinet shall be so designed that the velocity of the air flowing into the work-access aperture remains within the specified limits at the locations given below.

When determined in accordance with 6.6, the air velocity shall be in the range 0.7–1.0 m/s, measured for at least one minute and at least at five locations, namely at the geometric centre of the aperture and at each of its four corners, the centre of the measuring device being 50–55 mm from the edge of the aperture.

4.2 CLASS II CABINETS.**4.2.1 General:**

4.2.1.1 The cabinet shall be a self-contained unit that includes at least a work space, prefilters, HEPA-filters and a blower for unidirectional (laminar) HEPA-filtered air flow and HEPA-filtered exhaust air. For handling of organic toxins and non-corrosive volatile organic agents, an activated carbon filter may also be included.

4.2.1.2 The cabinet shall be an independent operating unit, and shall be independent of any other air-circulation system.

4.2.1.3 The exhaust outlet may face in any direction, provided that it is readily accessible.

4.2.1.4 The work face of the work space shall include a viewing window and a work-access aperture through which an inward flow of air is maintained.

4.2.1.5 All controls associated with the cabinet shall be integral parts of the cabinet.

4.2.1.6 In order to contain potentially hazardous materials within the cabinet, all contaminated zones under positive air pressure shall be surrounded by zones maintained under a negative pressure relative to the pressure in the work room/environment.

4.2.2 *Work floor:* The work floor shall be firm, shall not be fastened and shall be readily raised but shall have a location-fixing and position-fixing system, as well as systems to prevent reversed installation. The work floor may be solid or perforated. If the work floor is solid, it shall have around its perimeter, a retaining lip, of minimum height 10 mm, that serves to contain spillage of liquid within the cabinet. All corners of the floor shall be radiused to facilitate cleaning and disinfection (see 3.4.2).

4.2.3 *Sump:* The sump, which provides the base of the lower air plenum, shall be watertight and all joints shall be welded, ground flush and dressed. The sump shall be sized to retain fluid to a minimum depth of 10 mm. The floor of the sump shall have all corners radiused to facilitate cleaning and disinfection (see 3.4.2). Any obstructions or attachments shall be fitted in such a way that they are free from cracks and crevices that would adversely affect cleaning and disinfection.

4.2.4 Flow and distribution of air:

4.2.4.1 *Recirculating air and barrier air:* Air shall be recirculated through the work space through HEPA-filters and in a unidirectional (laminar) manner, thus providing contamination-free air for product protection.

An air barrier between the work space and the room shall be created across the full width of the work-access aperture by the induction of atmospheric (room) air downwards into the sump.

4.2.4.2 *Velocity and uniformity of air flow in the work space:*

(a) When determined in accordance with 6.6, the average velocity of the laminar flow of air shall be not less than 0,45 m/s and not more than 0,50 m/s. Readings of velocity at different locations within the work space shall be equal to the average figure, subject to a tolerance of $\pm 20\%$.

(b) When a cabinet is tested in accordance with 6.11, no more than five organisms shall be present on the plates of each of the six replicate tests, thus indicating a minimum of cross-contamination and, therefore, an acceptable level of uniformity of air flow.

4.2.4.3 *Air barrier integrity:*

(a) When a cabinet is tested in accordance with both 6.5 and 6.10, DOP aerosol and bacterial spores released around the outside perimeter of the work-access aperture and directed at the air barrier shall not enter the work space.

(b) When a cabinet is tested in accordance with 6.9, the cabinet shall offer a protection factor of at least 10^5 .

(c) The mean flow velocity of the air inward through the work-access aperture shall be at least 0,4 m/s when indirectly measured as exhaust air flow velocity in accordance with 6.6.

(d) When a smoke test is carried out in accordance with 6.5.3 (d), it shall demonstrate that the direction of air flow is inwards over the whole area of the work-access aperture.

Note: The proportional adjustment of the quantities of barrier air and the laminar flow of air is critical to the performance of the cabinet.

4.2.4.4 *Exhaust air:* A quantity of air equal to that of the barrier air shall be exhausted from the cabinet through the exhaust filter.

4.3 CLASS III CABINETS.**4.3.1 General:**

4.3.1.1 The cabinet shall be a self-contained unit that includes at least a work space, prefilters, HEPA-filters and a blower for HEPA-filtered inlet and exhaust air. Provision shall be made to prevent backward flow of contaminated air through the air intake by the fitting of an inlet HEPA-filter that also provides a supply of sterile air to flush the interior and prevent contamination of the material being handled. For handling of organic toxins and non-corrosive volatile organic agents, an activated carbon filter may also be included in the exhaust ducting.

Under *no* circumstances shall a Class I cabinet be upgraded to comply with the requirements of a Class III cabinet.

- 4.3.1.2 The cabinet shall be an independent operating unit and shall be independent of any other air-circulation system. When a cabinet is tested in accordance with 6.1, it shall be gastight.
- 4.3.1.3 The exhaust outlet may face in any direction, provided that it is readily accessible.
- 4.3.1.4 The work face of the work space shall include a viewing window and a sealed barrier that separates the operator from the work space. This barrier shall be fitted with gloves that are continuous with the barrier and the outer shell of the cabinet and that enable the worker to handle materials inside the cabinet.
- 4.3.1.5 All controls associated with the cabinet shall be operated from outside the cabinet.
- 4.3.1.6 In order to contain potentially hazardous materials within the cabinet, the interior of the cabinet shall always remain under a negative pressure relative to the pressure in the work room/environment. A manometer with a range of 0–500 Pa shall be mounted outside the cabinet to give visual indication of the pressure of the interior negative-pressure plenum.
- 4.3.2 *Glove ports:* Manipulation in the work space shall be carried out by means of glove ports which may also serve as transfer ports and for the attachment of transfer bags. Therefore, a bung that can be fitted internally or externally to provide an efficient and absolute seal of the port shall be provided for each port.
- 4.3.2.1 *Glove port assembly:*
- (a) The glove port assembly shall either be permanently welded to, riveted to or pressed from the front panel of the cabinet, or attached to the front panel of the cabinet by means of fasteners with sealing gaskets.
- (b) The glove port assembly shall comply with all the physical and chemical requirements for the outer shell of the cabinet, as specified in 3.3.
- (c) The dimensions of the glove port assembly shall be such as to provide for attachment of standard, commercially available beaded glovebox gauntlets, without undue tension on the rim of the glove. The manufacturer shall specify the glove cuff diameter or shape appropriate to the particular port size.
- (d) The outer side of the port ring shall be provided with two grooves to accommodate the beaded cuff of the glove and a secondary groove to permit changing gloves without compromising the seal.
- (e) An efficient means of sealing the glove port assembly shall be provided to ensure an absolute seal of the glove ports to enable fumigation of the cabinet.
- 4.3.2.2 *Gloves (gauntlets):*
- (a) The gloves shall fit either hand equally well and shall have beaded cuffs that are compatible with the diameter and shape of the glove ports.
- (b) Gloves shall be made of translucent material such that damage to the glove may be readily detected.
- (c) The gloves shall be easily replaceable from outside the cabinet, by pushing the old glove to the inside of the cabinet and fitting a new glove while the blower is still running.
- 4.3.3 *Filters:* Both the inlet and the exhaust filters of a Class III cabinet shall be HEPA-filters and they shall be of the same size and specification. The manufacturer's designed volumetric rate (air flow rate) shall be equal to or shall exceed the maximum necessary for the cabinet. When a filter is tested in accordance with 6.4 at the manufacturer's designed volumetric rate (air flow rate), the filter shall have a DOP penetration not exceeding 0.03 %.
- 4.3.4 *Flow and distribution of air:*
- 4.3.4.1 *Air flow:* When determined in accordance with 6.6, the air flow velocity shall be sufficient to ensure an air flow velocity of at least 0.75 m/s through the ports when all gloves are detached. The air flow through the inlet filter shall be at least 3 m³/min., when the gloves are attached.
- 4.3.4.2 *Cabinet air pressure:* Each inlet filter and each exhaust filter shall be of a size appropriate for passing the specified air flow (at least 3 m³/min. through the inlet filter) at a negative pressure in the cabinet of 200 Pa, and this shall be the minimum working pressure.
- 4.3.5 *Work floor:* The work floor shall be rigid, flat and constructed in one piece with radiused corners to facilitate cleaning and disinfection.
- 4.3.6 *Transfer chamber:* A transfer chamber may be fitted to the cabinet to permit the transfer of bulky items into the cabinet. If fitted, the transfer chamber shall be of a suitable size, with doors appropriate to the size of the items in question, and shall be fitted to the side of the cabinet.

The transfer chamber shall be a seamless gastight one-piece chamber with radiused corners to facilitate cleaning. When a transfer chamber fitted to the cabinet is tested in accordance with 6.1, the seams and joints of the doors and of the chamber shall show no sign of gas leakage. All materials used for the construction of the chamber shall comply with the requirements of 3.3.1. The chamber shall be fitted with in-line HEPA-filters and suitable serrated-tip needle valves to allow partial evacuation of the chamber, when required.

5. **INSTALLATION OF A CLASS I-, CLASS II OR III CABINET.**

5.1 The cabinet or its components shall be transported and installed in such a manner that damage to any part of the cabinet is prevented and the integrity of the cabinet is ensured. After installation, the cabinet shall comply with all the requirements of the specification, and the appropriate of the tests given in Section 6 shall be performed to ensure that the cabinet complies with the relevant performance and safety requirements.

6. **METHODS OF TEST.**

6.1 **DETERMINATION OF GASTIGHTNESS OF OUTER SHELL (CLASS III CABINETS).**

6.1.1 *Principle:* The cabinet is sealed and positively pressurized with dichlorodifluoromethane gas. All surfaces and joints are explored with the detector probe for leakage of the gas.

6.1.2 *Apparatus:*

(a) A gas detector, that is adjusted and calibrated to detect, at a reference leak source, the loss of dichlorodifluoromethane gas at a maximum rate of 14 g per annum.

(b) A manometer, with scale divisions not exceeding 25 Pa and that is capable of registered pressures in the range 200–300 Pa.

(c) A cylinder of dichlorodifluoromethane gas (commercially available as a refrigerant, Freon 12), with a regulator valve, nozzle and connecting hose.

6.1.3 *Procedure:*

(a) Prepare the cabinet for testing as a closed system, i.e. seal all openings such as the exhaust opening, removable panels and other penetrations. Remove all external covers not essential for the operation of the cabinet.

(b) Attach the manometer to the relevant test area of the cabinet to indicate interior pressure.

(c) Suitably connect the gas cylinder to the test area and release the gas to positively pressurize the cabinet interior to a pressure of 250 ± 5 Pa.

(d) Adjust the sensitivity of the gas detector in accordance with the manufacturer's instructions.

(e) Move the probe of the instrument over the seams, joints, utility penetrations, gaskets and other locations of possible leakage, keeping the probe 7–12 mm from any surface and moving it at a rate of about 0,013 m/s.

6.1.4 *Evaluation:* Deem the cabinet to be gastight if at no location a gas leak in excess of 14 g per annum is detected.

6.2 **DETERMINATION OF ILLUMINANCE.**

6.2.1 *Principle:* Measurements of illuminance are taken at random locations at a specified work level.

6.2.2 *Apparatus:* A calibrated, cosine and vision-corrected illuminance meter of such range that the illuminance measured is at least one-fifth of the full-scale value.

6.2.3 *Procedure:*

(a) Operate the lamps in the cabinet for at least two hours.

(b) At eight random locations, measure the illuminance at a height not exceeding 25 mm from the surface of the work floor and record the results obtained at each location.

6.3 **DETERMINATION OF VIBRATION.**

6.3.1 *Principle:* Measurements of the vibration velocity are made with a simple vibration meter at selected locations, with and without the cabinet in operation, to permit comparison of the vibration levels under these two conditions. Determination of the net vibration, i.e. that attributable to the cabinet alone, would require vibration frequency analysis.

6.3.2 *Apparatus:* A vibration meter capable of measuring steady-state vibration velocities in the range 0,05–0,5 mm/s (r.m.s.) in the frequency range 10–250 Hz, subject to a tolerance of $\pm 10\%$.

6.3.3 *Procedure:*

6.3.3.1 *Test positions:*

(a) *On the horizontal front-to-rear axes:* In order to determine vibration velocity measurements on the horizontal front-to-rear axes, attach the sensing element rigidly to the centre of the leading edge of the work floor.

(b) *On the horizontal side-to-side axes:* In order to determine vibration velocity measurements on the horizontal side-to-side axes, attach the sensing element rigidly to the centre of the (left or right) side of the work floor surface.

6.3.3.2 *Measurement:*

(a) Ensure that the air flow is as specified (see 4.1.3, 4.2.4 or 4.3.4.1, as applicable) and that the cabinet has been operating normally for at least 10 minutes before any measurements are made.

(b) With the sensing element positioned and attached as given in 6.3.3.1 (a), and the cabinet operating as in (a) above, measure and record the gross vibration velocity.

(c) Switch off the mechanical and electrical systems and measure and record the vibration velocity resulting from ambient conditions.

(d) With the sensing element positioned and attached as given in 6.3.3.1 (b), and the cabinet operating as in (a) above, again take measurements as in (b) and (c) above.

Note: The vibration frequency components of the ambient vibration are usually quite different from those of the cabinet mechanical system and hence the derivation of the net r.m.s. velocity (that attributable to the clean cabinet equipment) from measurements of gross and ambient vibration is not necessarily a simple mathematical subtraction.

6.4 DETERMINATION OF FINAL FILTER INSTALLATION INTERGRITY AND FILTER PERFORMANCE.

6.4.1 *Principle:* A polydisperse aerosol at room temperature is fed into the upstream side of the HEPA-filter installation at a specified flow rate and the downstream surface of the entire filter bank is scanned with a probe nozzle to determine the percentage of penetration.

6.4.2 *Apparatus:*

(a) *An anemometer*, accurate to within $\pm 2\%$.

(b) *DOP generator.* A generator fitted with suitable nozzles and using compressed nitrogen gas at 140 ± 14 kPa, with the free air flow adjusted to a minimum of 30 l/min. per nozzle. The DOP shall be used at room temperature and not heated.

Note: Details of a suitable nozzle may be obtained from the South African Bureau of Standards.

(c) *Aerosol photometer:* A light-scattering mass concentration indicator fitted with a probe nozzle. Photometers that have a threshold sensitivity of at least 10^{-3} g/l for DOP particles of diameter $0.3 \mu\text{m}$, and that are capable of measuring concentrations in the range of 80–120 g/l are suitable. The test photometer shall have a sample flow rate of 30 ± 3 l/min. The probe inlet shall be of sufficient size to maintain the probe inlet rate at or slightly higher than a test flow of 27,5 l/min. through the filter.

6.4.3 *Procedure:*

(a) Using the anemometer, ensure that the air flow through the filter bank is within the operating limits of the cabinet design flow (see 4.1.3, 4.2.4.2 or 4.3.4.1, as applicable). Ensure that the cabinet is operating normally while this procedure is being carried out. Determine air flow by means of the method given in 6.7.

(b) Regulate the generator pressure to 140 ± 14 kPa with a minimum free air flow through the generator of 30 l/nozzle per minute.

(c) For photometers that have—

- (1) a linear readout, establish the upstream concentration by introducing the least amount of DOP aerosol required to produce a 100 % reading, thus allowing the instrument to be stray-light adjusted to zero on the lowest scale range when the sample air stream is filtered free of aerosol;
- (2) a logarithmic readout, adjust the upstream concentration (as determined from the instrument calibration curve) by introducing the least amount of DOP aerosol required to produce a concentration of 1×10^4 above that concentration required to give a reading of one scale division. Avoid prolonged exposure of filters to DOP.

(d) Scan the entire filter bank by passing the probe in slightly overlapping strokes such that the entire filter area is sampled. At a traverse rate not exceeding 5 cm/s, make separate strokes around the entire periphery of the filter bank, along the bonds between the filters and their frames and around the seal between the filter bank and the cabinet. Record any local areas or points where a reading exceeding 0,03 % is obtained.

6.5 METHOD FOR THE DETECTION OF LEAKS INTO THE WORK SPACE AND DEMONSTRATION OF THE INTERGRITY OF THE CABINET, THE AIR BARRIER AND THE AIR FILTER.

6.5.1 *Principle:* The vicinity of all construction joints bordering the work space and all openings into the work space are surveyed, while air-generated DOP smoke is directed at a joint in the vicinity of the work space or at the work-access aperture (air barrier). Measurements are made using an aerosol photometer to determine any increase compared with the filter face reading.

Meter readings in excess of 0,03 % penetration indicate joint leakage or backstreaming.

6.5.2 Apparatus:

- (a) An aerosol photometer as in 6.4.2(c).
- (b) A DOP generator as in 6.4.2(b).

6.5.3 Procedure:

(a) Using the aerosol photometer, measure the ambient DOP level of the room and the work space of the cabinet. If the reading is less than 10^3 above the filter face reading for the aerosol photometer, direct DOP smoke at the ambient (external) side of the joint or work-access aperture while the cabinet is operating normally and the operator's body is positioned at least 200 mm away from the outside edges of the area being surveyed.

(b) Use the photometer to scan all construction joints bordering the work space, with the probe inlet held inside the cabinet, not more than 25 mm away from the joint and moved along the joint at not more than 5 cm/s.

(c) Regard an opening as any open passage from the work space to the ambient side, or at the inside edge of any recirculation slot, or at the joint between cabinet surfaces and any closure panel. Scan the periphery of all openings into the work space, with the probe inlet held inside the work space, not more than 50 mm away from the opening or not more than 25 mm away from the surfaces. Scan the entire perimeter of the opening at not more than 5 cm/s.

Record any photometer reading, and its location, in excess of 0,03 % DOP penetration, relative to the 100 % measured upstream.

(d) In addition, carry out a simple smoke test to determine the direction of air flow near the work-access aperture. Generate DOP or any other smoke on the ambient side of the aperture so that the smoke cloud is within 140 mm of the entire area of the opening, and note the direction of the air flow.

6.6 DETERMINATION OF VELOCITY AND UNIFORMITY OF AIR FLOW.

6.6.1 Principle: Air flow velocity readings are taken at selected locations, using an anemometer, and then the average of the readings is calculated.

6.6.2 Apparatus:

- (a) An anemometer, accurate to within ± 2 %.
- (b) Manometer: An inclined-tube liquid-filled or similar manometer with scale divisions not exceeding 25 Pa.

6.6.3 Procedure:

(a) Ensure that the cabinet is operating normally. Take and record velocity readings in a plane parallel to and approximately 150 mm downstream of the HEPA-filters or 150 mm from the ceiling of the cabinet.

(b) Take and record velocity readings at 200–225 mm intervals in both directions, starting at a location 75–100 mm from the inner edge of the work surface such that one reading is taken at each intersection of an imaginary square grid having overall dimensions equal to those of the work surface.

(c) Using the manometer, measure and record the pressure drop across the filter system.

(d) Using the anemometer, also determine and record the velocity of the exhaust air at the outlet of the exhaust duct.

6.6.4 Report: Include the following details in the report:

- (a) The pressure drop across the filter system.
- (b) Each velocity reading and its location. The velocity of the exhaust air is equivalent to the velocity of the inlet air (barrier or face air).
- (c) The average of the velocity readings taken.
- (d) Maximum and minimum velocity readings.
- (e) Percentage variations from the average of maximum and minimum readings.

6.7 DETERMINATION OF AIR FLOW VELOCITY UNDER LOADED FILTER CONDITIONS (MOTOR BLOWER TEST).

6.7.1 Principle: The air flow velocity is determined after clean filters have been fitted and once again after the additional restrictive device has been fitted to simulate an increase in the air flow resistance to twice the pressure drop across a clean filter system. Maintenance of air flow velocity demonstrates adequate motor blower capacity.

6.7.2 Apparatus:

- (a) Restrictive device: Resistance materials to be added to obtain an increase in pressure drop equal to at least twice the pressure drop of the clean filters.

(b) *An anemometer* as in 6.6.2(a).

(c) *An manometer* as in 6.6.2(b).

6.7.3 *Procedure:*

(a) With the motor blower of the cabinet operating, measure and record the air flow velocity as in 6.6 and adjust it to that specified. Ensure that prefilters and final HEPA-filters are clean for this test.

(b) Fit the manometer to the upstream side of the final HEPA-filters(s) and measure and record the pressure drop to the downstream side of the filters(s).

(c) Install the restrictive device.

(d) Measure and record the pressure drop of the loaded system and adjust the restrictive device as necessary to achieve the specified increase in pressure drop.

(e) Measure and record the air velocity as in 6.6.

(f) Ensure that the blower maintains the specified air velocity for at least 30 min at the increased pressure drop.

6.7.4 *Report:* Include the following details in the report:

(a) The specified air flow velocity with clean filters;

(b) the pressure drop across the final filter system with both filters in a clean condition;

(c) the pressure drop across combined filters and when the restrictive device is in position;

(d) the air flow velocity when the restrictive device is in position.

6.8 DETERMINATION OF NOISE LEVEL.

6.8.1 *Principle:* Noise levels are measured at selected locations near to a cabinet under operating conditions and, if necessary, the background ambient conditions are also recorded.

6.8.2 *Apparatus:*

(a) *Sound level meter:* A sound level meter that complies with the performance characteristics and accuracy requirements of at least a Type I instrument as given in subsection 4.1 of SABS 083-1983 'The measurement and assessment of occupational noise for hearing conservation purposes', published by Government Notice No. 356 of 20 May 1983.

(b) *Calibration source:* An acoustic source designed for use with the sound level meter and having a single frequency sound output, the amplitude of which is known to within 0,3 dB at the temperature and barometric pressure at which the calibration check is performed.

6.8.3 *Procedure:*

(a) Ensure that the cabinet is operating normally. Measure and record the noise level with the meter situated 0,3 m from, as well as 0,3 m above the top edge of, the work-access aperture, or 1 m from any other part of the cabinet including the duct work and discharge point of the extract system, if fitted.

(b) Ensure that the air flow of the cabinet is as specified. Take all measurements with the sound meter set to use the A-weighted network and fast response. Using the acoustic calibrator, check the performance of the sound level meter before and after measurements are made and discard the results if the two checks do not coincide to within 1,0 dB.

6.8.4 *Report:* Include the following details in the report:

(a) All operating noise level measurements and their location;

(b) the identified maximum sound level and its location;

(c) if relevant, the ambient noise level measurements at locations where indicated.

6.9 DETERMINATION OF THE PROTECTION FACTOR FOR CLASS II CABINETS.

6.9.1 *Principle:* The protection factor is defined by the ration of the exposure to airborne contamination generated on the open bench to the exposure resulting from the same dispersal within the cabinet.

(a) The transfer index defines the exposure experienced at a given point as $n(Ns)$, where N is the number of particles liberated and n the number recovered at a sampling rate of s , the sampling being continued to completion. In a room with turbulent ventilation giving completely uniform mixing throughout, the transfer index is equal to $1/V$, where V is the effective volumetric ventilation rate, which includes loss by sedimentation. The transfer index has the dimensions TL^{-3} , i.e. time/(Length)³.

(b) The ratio of the transfer indices in the two situations is the protection factor and is dimensionless. For the reference open-bench conditions, the room ventilation V is taken as 10 m³/min.

(c) The protection factor then becomes $(Ns)/(10n)$ if the sampling rate s is expressed in cubic metres per minute, or $(Ns)/(10^4n)$, if s is expressed in litres per minute.

Ideally, there should be no escape from a safety cabinet, n should be zero and the protection factor infinite. However, no open-fronted cabinet will give complete protection and the maximum value of the protection factor that can be assessed depends on the sensitivity of the test, i.e. the size of the challenge N , the magnitude of the sampling rate s , and the smallest number of particles recovered that can reliably be differentiated from background contamination. Practical values for these are N at least 3×10^8 , s at least 50 l/min. and n not exceeding 10, which lead to a minimum ascertainable value of at least $1,5 \times 10^5$ for the protection factor.

(d) In order to avoid confusion from background contamination, the tests shall be carried out in a well-ventilated room and shall be preceded by an estimate of the background contamination.

6.9.2 Materials and apparatus:

(a) *Spore suspension*: A suspension of spores of *Bacillus subtilis* var *globigii* (SATCC BAC 35) in distilled water, standardized to contain approximately 10^8 – 10^9 spores per millilitre.

(b) *Culture plates*: Petri dishes (90 mm diameter) containing 15–20 ml of nutrient agar [see (e) below].

(c) *Slit air samplers*: Two slit air samplers, each operating at between 25 l and 30 l of air per minute.

(d) *Nebulizer*: A Collison 6-Jet nebulizer with an internal outlet of diameter 14 mm, operated from a pressure line at 70 kPa, spraying approximately 0,2 ml/min. and discharging no more than 10 l/min. of free air at a velocity of 0,8 m/s.

(e) *Nutrient agar*: A solution made up as follows:

Agar	15,0 g
Peptone	10,0 g
Beef extract	5,0 g
Sodium chloride	5,0 g

Dissolve the ingredients in heated water and make up to 1 l. Adjust the pH value to 7,2. Dispense 15 ml volumes into bottles and sterilize by autoclaving at 121 °C for 20 min.

(f) *Cylinder*: A cylinder of length and diameter approximately 1 m and 60–65 mm, respectively, that has a smooth surface and is closed at both ends.

6.9.3 Procedure:

(a) Introduce the cylinder through the work-access aperture of the cabinet to disturb the air flow (to simulate an operator's arm). Place the cylinder centrally between the side walls and normal to the plane of the aperture, extending from the back of the work space to protrude at least 250 mm into the room. Raise the lower surface of the cylinder to between 65 mm and 75 mm from the work floor.

(b) Place the nebulizer inside the work space, with its outlet or appropriate extension thereof not more than 100 mm behind the plane of the aperture and directed towards the aperture, with the spray axis parallel to the work surface. Ensure that the spray axis is level with the upper edge of the aperture.

(c) Position two slit air samplers outside the cabinet in front of the aperture, with their inlets not more than 200 mm in front of the plane of the aperture. Ensure that the inlets are level with the top of the cylinder, one to the right and one to the left, and each not more than 150 mm from the axis of the cylinder.

(d) Ensure that the cabinet is operating normally. Start the samplers 30 s before starting the nebulizer and continue for at least five minutes after the nebulizer has been turned off. Adjust each sampler to a sample volume of at least 25 l of air per minute. Run the nebulizer for a period of at least four minutes to ensure the dispersal of at least 3×10^8 spores. In order to run a control, switch the cabinet motors off and repeat the entire procedure.

(e) Determine the challenge dose as follows:

Before the spraying procedure, carry out a plate count on tenfold serial dilutions of the spore suspension. Repeat the process after the spraying period. After the initial plate count, carry out the spraying procedure by accurately measuring out a 5 ml volume V of the spore suspension and placing it in the nebulizer for the test. Determine the mass of the nebulizer (W_1). After spraying, again determine the mass of the nebulizer (W_2), and prepare tenfold dilutions of the remaining spore suspension in the nebulizer, the volume ($V + W_2 - W_1$) of which shall be at least half ($V/2$) of the original volume. Carry out a plate count on the dilution series before and after spraying, incubate the plates at 37 °C for a period of 24–48 h and count the colonies on each plate containing 100–300 colonies after incubation.

From these counts, calculate the concentration of spores in the initial (n_1 /ml) and in the final (n_2 /ml) suspension.

(f) The challenge dose is then given as:

$$N - n_2(W_1 + W_2) - (n_2 - n_1)V$$

(g) Carry out his procedure at least five times. Each run shall give a protection factor of at least 10^5 [see 6.9.1 (c)].

(h) Repeat procedures (b), (c) and (d) above, but place the slit air sampler inlets in front of the *exhaust opening*. Sample the air with the cabinet in operation and with the cabinet switched off. Carry out this procedure five times. Each run shall show no more than five more colonies on the plates sampled during the operation of the cabinet when compared with the plates sampled after the cabinet motors have been switched off (controls: samples of the ambient air).

6.10 EXTERNAL CONTAMINATION TEST.

6.10.1 *Principle:* The integrity of the air barrier at the work-access aperture is indicated by the measurement of the inward penetration of bacterial spores which are sprayed into the opening. With the cabinet operating normally, no more than five spores shall penetrate the work space.

6.10.2 *Materials and apparatus:* As in 6.9.2 (the slit air samplers are not required).

6.10.3 *Procedure:*

(a) Place the cylinder in the cabinet as given in 6.9.3 (a).

(b) Distribute at least 12 culture plates (petri dishes of diameter 90 mm) evenly over the work floor of the cabinet.

(c) Position the nebulizer outside the cabinet, with the nebulizer's delivery opening 100 mm in front of the centre of the top edge of the work-access aperture. The spray axis shall be parallel to the level of the work floor and directed into the cabinet.

(d) Ensure that the cabinet is operating normally. Uncover the culture plates one minute before spraying begins and cover them again five minutes after spraying stops. Run the nebulizer for a period of at least four minutes to ensure the dispersal of a challenge dose of at least 3×10^6 spores.

(e) In any test, the number of colonies of the test organism counted after incubation at 37 °C for a period of 24–48 hours shall not exceed 5. Carry out the test five times.

(f) Carry out a control test with the cabinet motor blower(s) switched off. At least 300 colonies shall be recovered from these plates during each of the tests.

6.11 CROSS-CONTAMINATION TEST.

6.11.1 *Principle:* Bacterial spores are sprayed across the work space and contamination of the opposite two thirds of the cabinet is monitored.

6.11.2 *Apparatus and materials:* As in 6.9.2 (the slit air samplers are not required).

6.11.3 *Procedure:*

(a) Place the cylinder in the cabinet as given in 6.9.3 (a).

(b) Distribute at least 12 culture plates (petri dishes of diameter 90 mm) evenly over the right two thirds of the work floor of the cabinet and at least 350 mm from the left side.

(c) Position the nebulizer with its spray axis 100 mm above the work floor and 50 mm from the left side. Ensure that the spray axis is parallel to the level of the work floor and directed towards the wall where the culture plates are positioned.

(d) Ensure that the cabinet is operating normally. Uncover the culture plates one minute before spraying begins and cover them again five minutes after spraying stops. Run the nebulizer for a period of at least four minutes to ensure the dispersal of a challenge dose of at least 10^5 spores.

(e) In any test, the number of colonies of the test organism counted after incubation at 37 °C for a period of 24–48 hours shall not exceed 5. Carry out the test three times.

(f) Carry out the test procedure in (a)–(e) above three more times, using reversed positions (i.e. placing the culture plates on the left and the nebulizer on the right).

(g) Carry out a control test with the cabinet motor blower(s) switched off. At least 300 colonies shall be recovered from these plates during each of the tests.

6.12 **TEST FOR RESISTANCE TO CORROSION:** Use SABS Method 155-1975 'Resistance to salt fog of paint films', published by Government Notice No. 463 of 9 July 1982.

6.13 **PREFILTER TESTS:** Use the test methods given in SABS 1424-1987 'Filters for air-conditioning and general ventilation', published by Government Notice No. 1878 of 4 September 1987.

DEPARTEMENT VAN JUSTISIE

No. 6

5 Januarie 1990

INSTELLING VAN 'N HOF VIR KLEIN EISE VIR DIE GEBIED BRAKPAN

Kragtens die bevoegdheid my verleen by artikel 2 van die Wet op Howe vir Klein Eise, 1984 (Wet No. 61 van 1984), gee ek, Hendrik Jacobus Coetsee, hierby kennis dat ek—

- (a) 'n hof vir die beregting van eise vir die gebied Brakpan bestaande uit die distrik Brakpan, instel;
- (b) Brakpan as die setel van die hof bepaal; en
- (c) Brakpan bepaal as 'n plek in die voormelde gebied vir die hou van sittings van so 'n hof.

H. J. COETSEE,
Minister van Justisie.

No. 7

5 Januarie 1990

RONDGANG DISTRIKTE VAN DIE TRANSVAALSE PROVINSIALE AFDELING VAN DIE HOOGGEREGSHOF VAN SUID-AFRIKA

Ek, Henry Harris Moll, Register-president van die Transvaalse Provinsiale Afdeling van die Hooggeregshof van Suid-Afrika, kragtens artikel 7 (1) van die Wet op die Hooggeregshof, 1959 (Wet No. 59 van 1959), deel hierby die regsgebied van die Transvaalse Provinsiale Afdeling van die Hooggeregshof van Suid-Afrika in in die rondgang distrikte soos in die Bylae uiteengesit.

Kennisgewing No. 61 van 1966, gedateer 28 Januarie 1966, word hierby ingetrek.

Geteken te Pretoria, op hede die 19de dag van Desember 1989.

H. H. MOLL,

Regter-president, Transvaalse Provinsiale Afdeling van die Hooggeregshof van Suid-Afrika.

BYLAE

Rondgaande Provinsiale Afdeling vir die Noordelike Rondgang Distrik—bestaande uit die landdrostdistrikte Bochum (Tvl.), Bolubedu (Tvl.), Ellisras, Giyani, Letaba, Malamulele, Messina, Mokerong, Naphuno, Phalaborwa, Pietersburg, Potgietersrus, Ritavi, Sekgose (Tvl.), Seshego (Tvl.), Soutpansberg, Thabamopo (Tvl.), Thabazimbi, Warmbad, Waterberg.

Rondgaande Plaaslike Afdeling vir die Oostelike Rondgang Distrik—bestaande uit die landdrostdistrikte Amersfoort, Barberton, Belfast, Bethal, Carolina, Eerstehoek, Ermelo, Hoëveldrif, Lydenburg, Mapulaneng, Mhala, Middelburg (Tvl.), Nelspruit, Nkomazi, Nsikazi, Piet Retief, Pelgrimsrus, Sekhukhuneland, Standerton, Volksrust, Wakkerstroom, Waterval-Boven, Witbank, Witrivier (Tvl.).

Rondgaande Plaaslike Afdeling vir die Westelike Rondgang Distrik—bestaande uit die landdrostdistrikte Bloemhof (Tvl.), Christiana (Tvl.), Coligny, Delareyville (Tvl.), Klerksdorp, Koster, Lichtenburg, Marico (Tvl.), Oberholzer, Potchefstroom, Rustenburg, Schweizer-Reneke, Swartruggens, Ventersdorp, Wolmaransstad.

Rondgaande Plaaslike Afdeling vir die Vereeniging Rondgang Distrik—bestaande uit die landdrostdistrikte Vanderbijlpark, Vereeniging.

Rondgaande Plaaslike Afdeling vir die Springs Rondgang Distrik—bestaande uit die landdrostdistrikte Balfour (Tvl.), Benoni, Brakpan, Delmas, Heidelberg (Tvl.), Nigel, Springs.

DEPARTMENT OF JUSTICE

No. 6

5 January 1990

ESTABLISHMENT OF A SMALL CLAIMS COURT FOR THE AREA OF BRAKPAN

Under and by virtue of the powers vested in me by section 2 of the Small Claims Courts Act, 1984 (Act No. 61 of 1984), I, Hendrik Jacobus Coetsee, hereby give notice that I—

- (a) establish for the area of Brakpan consisting of the District of Brakpan, a court for the adjudication of claims;
- (b) determine Brakpan as the seat of the court; and
- (c) determine Brakpan as a place in the aforementioned area for the holding of sessions of such a court.

H. J. COETSEE,
Minister of Justice.

No. 7

5 January 1990

CIRCUIT DISTRICTS OF THE TRANSVAAL PROVINCIAL DIVISION OF THE SUPREME COURT OF SOUTH AFRICA

I, Henry Harris Moll, Judge President of the Transvaal Provincial Division of the Supreme Court of South Africa, under section 7 (1) of the Supreme Court Act, 1959 (Act No. 59 of 1959), hereby divide the area of jurisdiction of the Transvaal Provincial Division of the Supreme Court of South Africa into the circuit districts as set out in the Schedule.

Notice No. 61 of 1966, dated 28 January 1966, is hereby withdrawn.

Signed at Pretoria this 19th day of December 1989.

H. H. MOLL,

Judge President, Transvaal Provincial Division of the Supreme Court of South Africa.

SCHEDULE

Circuit Local Division of the Northern Circuit District—consisting of the Magisterial Districts of Bochum (Tvl.), Bolubedu (Tvl.), Ellisras, Giyani, Letaba, Malamulele, Messina, Mokerong, Naphuno, Phalaborwa, Pietersburg, Potgietersrus, Ritavi, Sekgose (Tvl.), Seshego (Tvl.), Soutpansberg, Thabamopo (Tvl.), Thabazimbi, Warmbaths, Waterberg.

Circuit Local Division of the Eastern Circuit District—consisting of the Magisterial Districts of Amersfoort, Barberton, Belfast, Bethal, Carolina, Eerstehoek, Ermelo, Highveld Ridge, Lydenburg, Mapulaneng, Mhala, Middelburg (Tvl.), Nelspruit, Nkomazi, Nsikazi, Piet Retief, Pilgrims Rest, Sekhukhuneland, Standerton, Volksrust, Wakkerstroom, Waterval-Boven, Witbank, White River (Tvl.).

Circuit Local Division of the Western Circuit District—consisting of the Magisterial Districts of Bloemhof (Tvl.), Christiana (Tvl.), Coligny, Delareyville (Tvl.), Klerksdorp, Koster, Lichtenburg, Marico (Tvl.), Oberholzer, Potchefstroom, Rustenburg, Schweizer-Reneke, Swartruggens, Ventersdorp, Wolmaransstad.

Circuit Local Division of the Vereeniging Circuit District—consisting of the Magisterial Districts of Vanderbijlpark, Vereeniging.

Circuit Local Division of the Springs Circuit District—consisting of the Magisterial Districts of Balfour (Tvl.), Benoni, Brakpan, Delmas, Heidelberg (Tvl.), Nigel, Springs.

No. 39

5 Januarie 1990

WYSIGING VAN DIE REËLS WAARBY DIE VERRIGTINGE VAN DIE ORANJE-VRY-STAATSE PROVINSIALE AFDELING VAN DIE HOOGGEREGSHOF VAN SUID-AFRIKA GEREËL WORD

Kennis word hierby gegee dat die Regter-president van die Oranje-Vrystaatse Provinsiale Afdeling van die Hooggeregshof van Suid-Afrika, kragtens artikel 43 (2) (b) van die Wet op die Hooggeregshof, 1959 (Wet No. 59 van 1959), Reël 2 van die reëls waarby die verrigtinge van die Oranje-Vrystaatse Provinsiale Afdeling van die Hooggeregshof van Suid-Afrika gereël word, gepubliseer by Goewermentskennisgewing No. R. 3290 van 12 September 1969, gewysig het deur die bestaande subreël (1) met die volgende te vervang:

(1) Vir die afhandeling van siviele en strafaangeleenthede is daar vier sittingstermyne in elke jaar soos volg:

- (a) vanaf 1 Februarie tot en met 31 Maart;
- (b) vanaf 15 April tot en met 30 Junie;
- (c) vanaf 1 Augustus tot en met 30 September;
- (d) vanaf 15 Oktober tot en met 15 Desember:

Met dien verstande dat geen bestrede geding vir verhoor op enige Maandag of gedurende die laaste drie dae van enige termyn sonder verlof van die Regter-president op die rol geplaas word nie.

F. S. SMUTS,
Regter-president.

KANTOOR VAN DIE STAATSPRESIDENT

No. 8

5 Januarie 1990

AANSTELLING VAN MINISTERIËLE VERTEENWOORDIGERS VIR DIE MINISTERS-RAAD VAN DIE RAAD VAN AFGEVAARDIGDES

Hierby word vir algemene inligting bekendgemaak dat die Staatspresident kragtens artikel 28 (1) van die Grondwet van die Republiek van Suid-Afrika, 1983 (Wet No. 110 van 1983), die volgende persone met ingang van 1 Januarie 1990 as ministeriële verteenwoordigers vir die Ministersraad van die Raad van Afgevaardigdes aangestel het:

Mnr. Suleman Essop Mansoor (Natal).
Mnr. Moonsamy Raju (Natal).
Eerw. Kistappa Reddy (Transvaal).

DEPARTEMENT VAN NASIONALE OPVOEDING

No. 26

5 Januarie 1990

WET OP NASIONALE GEDENKWAARDIGHEDE, No. 28 VAN 1969 BERGINGSPERMIT

Ingevolge artikel 12 (2C) (c) van die Wet op Nasionale Gedenkwaardighede, 1969 (Wet No. 28 van 1969), bied die Raad vir Nasionale Gedenkwaardighede hierby geleentheid vir die rig van vertoë tot hom oor die uitreiking van 'n bergingspermit vir die Engelse skip "Finland", wat in 1887 naby Kleinmond gestrand het.

No. 39

5 January 1990

AMENDMENT OF THE RULES REGULATING THE CONDUCT OF THE PROCEEDINGS OF THE ORANGE FREE STATE PROVINCIAL DIVISION OF THE SUPREME COURT OF SOUTH AFRICA

Notice is hereby given that the Judge President of the Orange Free State Provincial Division of the Supreme Court of South Africa has, in terms of section 43 (2) (b) of the Supreme Court Act, 1959 (Act No. 59 of 1959), amended Rule 2 of the rules regulating the conduct of proceedings of the Orange Free State Provincial Division of the Supreme Court of South Africa, published under Government Notice R. 3290 of 12 September 1969, by replacing the existing subrule (1) with the following:

(1) For the dispatch of civil and criminal business of the court there shall be four terms in the year as follows:

- (a) from 1 February to 31 March, inclusive;
- (b) from 15 April to 30 June, inclusive;
- (c) from 1 August to 30 September, inclusive;
- (d) from 15 October to 15 December, inclusive:

Provided that no defended action shall be set down for hearing on Monday or during the last three days of any term without the leave of the Judge President.

F. S. SMUTS,
Judge President.

STATE PRESIDENT'S OFFICE

No. 8

5 January 1990

APPOINTMENT OF MINISTERIAL REPRESENTATIVES FOR THE MINISTERS' COUNCIL OF THE HOUSE OF DELEGATES

It is hereby notified for general information that the State President has in accordance with section 28 (1) of the Republic of South Africa Constitution Act, 1983 (Act No. 110 of 1983), appointed the following ministerial representatives for the Ministers' Council of the House of Delegates with effect from 1 January 1990:

Mr Suleman Essop Mansoor (Natal).
Mr Moonsamy Raju (Natal).
Rev. Kistappa Reddy (Transvaal).

DEPARTMENT OF NATIONAL EDUCATION

No. 26

5 January 1990

NATIONAL MONUMENTS ACT, No. 28 OF 1969

SALVAGE PERMIT

In terms of section 12 (2C) (c) of the National Monuments Act, 1969 (Act No. 28 of 1969), the National Monuments Council hereby invites representations on the issuing of a salvage permit for the English ship "Finland", which sank in 1887 near Kleinmond.

Sodanige vertoë moet die Raad vir Nasionale Gedenkwaardighede, Posbus 4637, Kaapstad, 8000, binne drie weke vanaf die datum van publikasie van hierdie kennisgewing bereik.

C. COCHRANE,

Waarnemende Direkteur: Raad vir Nasionale Gedenkwaardigheid.

No. 40

5 Januarie 1990

BURO VIR HERALDIEK

HERALDIEKWET, 1962 (WET No. 18 VAN 1962)

KENNISGEWING VAN DIE WYSIGING VAN DIE REGISTRASIE VAN 'N HERALDIESE VOORSTELLING

Aansoeker: Pretoria High School for Girls. (H4/3/1/35.)

Hierby word kennis gegee dat die blasoen soos gepubliseer by Goewermentskennisgewing No. 954 van 24 Junie 1936 deur die volgende vervang word.

Wapen: In silwer, 'n blou irisblom binne-in 'n groen skildsoom.

Wapenspreuk: PROSIT SPES LABORI.

DEPARTEMENT VAN WATERWESE

No. 17

5 Januarie 1990

LINDLEYSPOORT-STAATSWATERBEHEERGEBIED, DISTRIK SWARTRUGGENS, PROVINSIE TRANSVAAL.—KENNISGEWING INGEVOLGE ARTIKEL 62 (2D) (a) VAN DIE WATERWET, 1956

OPNAME VAN BESTAANDE BESPROEIINGS-ONTWIKKELING EN DIE BESPROEIBARE OPPERVLAKTE OP ELKE STUK GROND BINNE DIE GEBIED OEWER AAN DIE ELANDSRIVIER STROOM AF VAN DIE LINDLEYSPOORTDAM

In hierdie kennisgewing het enige uitdrukking waarvan in die Waterwet, 1956, 'n betekenis geheg word, dieselfde betekenis en, tensy uit die samehang anders blyk, beteken—

“besproeibare oppervlakte” die besproeibare oppervlakte van 'n stuk grond geleë in die Gebied binne 'n afstand van 1,6 kilometer horisontaal vanaf die rivieroewer en 'n statiese pomphoogte van 45 meter vertikaal bokant die bedding van die Elandsrivier soos gemeet op die naaste punt reghoekig teenoor die betrokke openbare stroom en wat die Direkteur-generaal: Waterwese geskik ag vir die verbouing van gewasse onder besproeiing;

“bestaande besproeiings-ontwikkeling” die oppervlakte wat deel uitmaak van 'n stuk grond binne die Gebied wat op die datum van insluiting daarvan by die Gebied in die kantoor van die betrokke registrateur van aktes as 'n afsonderlike eiendom geregistreer was, en wat na die Direkteur-generaal: Waterwese se oordeel ten eniger tyd gedurende die kwalifiserende tydperk wat ten opsigte van die Gebied van toepassing is, in die geheel of gedeeltelik, hetsy wettiglik of onwettiglik, met openbare water besproei is;

“bestaande waterwerk” 'n waterwerk wat te eniger tyd gedurende die kwalifiserende tydperk gebruik is vir die uitneem, opdamming, opgaring of gebruik van openbare water ten einde die geheel of 'n gedeelte van daardie stuk grond te besproei;

Such representations should reach the National Monuments Council, P.O. Box 4637, Cape Town, 8000, within three weeks from the date of publication of this notice.

C. COCHRANE,

Acting Director: National Monuments Council.

No. 40

5 January 1990

BUREAU OF HERALDRY

HERALDRY ACT, 1962 (ACT No. 18 OF 1962)

NOTICE OF THE AMENDMENT OF THE REGISTRATION OF A HERALDIC REPRESENTATION

Applicant: Pretoria High School for Girls. (H4/3/1/35.)

Notice is hereby given that the blazon as published under Government Notice No. 954 of 24 June 1936 is replaced by the following:

Arms: Argent, an iris flower Azure within a bordure Vert.

Motto: PROSIT SPES LABORI.

DEPARTMENT OF WATER AFFAIRS

No. 17

5 January 1990

LINDLEYSPOORT GOVERNMENT WATER CONTROL AREA, DISTRICT OF SWARTRUGGENS, PROVINCE OF THE TRANSVAAL.—NOTICE IN TERMS OF SECTION 62 (2D) (a) OF THE WATER ACT, 1956

SURVEY OF EXISTING IRRIGATION DEVELOPMENT AND THE IRRIGABLE AREA ON EACH PIECE OF LAND WITHIN THE AREA RIPARIAN TO THE ELANDS RIVER DOWNSTREAM OF THE LINDLEYSPOORT DAM

In this notice any expression to which a meaning has been assigned in the Water Act, 1956, shall bear the same meaning and, unless the context otherwise indicates—

“date of inclusion”, with regard to the inclusion of a piece of land in the Area, means 13 July 1956 in respect of the piece of land mentioned in Proclamation No. 123 of 5 July 1937 concerning the Government Irrigation Area Lindleyspoort, which in terms of section 59 (3) (a) of the Water Act, 1956, is deemed to be declared as the Lindleyspoort Government Water Control Area under and for the purposes of section 59 (1) (a) and (b) of the Water Act, 1956, on the date of promulgation thereof, namely 13 July 1956;

“existing irrigation development” means the area comprising the portion of a piece of land within the Area which, on the date of its inclusion in the Area, was registered in the office of the registrar of deeds concerned as a separate property and which, in the opinion of the Director-General: Water Affairs was irrigated in whole or in part, whether lawfully or unlawfully, with public water at any time during the qualifying period applicable to the area;

“datum van insluiting”, na aanleiding van ’n stuk grond se insluiting in die Gebied, 13 Julie 1956, met betrekking tot die stukke grond vermeld in Proklamasie No. 123 van 5 Julie 1937 ten opsigte van die Staatsbesproeiingsgebied Lindleyspoort wat ingevolge artikel 59 (3) (a) van die Waterwet, 1956, geag word die Lindleyspoort-staatswaterbeheergebied te wees, ingestel op datum van promulgering van die Waterwet, 1956, naamlik 13 Julie 1956;

“die Gebied” die gedeelte van die Staatsbesproeiingsgebied Lindleyspoort soos ingestel kragtens artikel 98 van die Besproeiings en Waterbewarings Wet, 1912 by Proklamasie No. 123 van 5 Julie 1937, wat ingevolge artikel 59 (3) (a) van die Waterwet, 1956, vanaf datum van promulgering daarvan, naamlik 13 Julie 1956, geag word die Lindleyspoort-staatswaterbeheergebied, ingestel kragtens die bepalinge van artikel 59 (1) (a) en (b) van die Waterwet, 1956, te wees.

“die Wet” die Waterwet, 1956 (Wet No. 54 van 1956);

“kwalifiserende tydperk”, met betrekking tot die Gebied, die tydperk van 12 maande wat die datum van insluiting van ’n stuk grond in die Gebied onmiddellik voorafgegaan het;

“stuk grond” ’n stuk grond wat op die datum van insluiting daarvan by die Gebied as ’n afsonderlik opgemete eenheid in die kantoor van die betrokke registrateur van aktes geregistreer was;

“stuk grond met bestaande besproeiingsontwikkeling”, met betrekking tot die Gebied, ’n stuk grond in die Gebied wat —

- (a) op die datum van insluiting daarvan in die Gebied in die kantoor van ’n registrateur van aktes geregistreer was; en
- (b) te eniger tyd gedurende die kwalifiserende tydperk in die geheel of gedeeltelik, hetsy wettiglik of onwettiglik, met openbare water besproei is;

“voorlopige reg” die hoeveelheid openbare water wat ingevolge artikel 62 (2A) (a) van die Wet ten opsigte van ’n stuk grond met bestaande besproeiingsontwikkeling uitgeneem, opgedam, opgegaar of vir besproeiingsdoeleindes gebruik mag word, en wat na die oordeel van die Direkteur-generaal: Waterwese, voldoende is vir die besproeiing van die oppervlakte teenoor elke stuk grond in die Bylae tot hierdie kennisgewing aangedui.

1. Ek, Jacob Albertus van Wyk, Adjunk-minister van Waterwese, handelende namens die Minister van Waterwese kragtens die bevoegdheid hom verleen by artikel 62 (2D) (a) van die Wet, publiseer in die Bylae hiervan ’n lys van al die stukke grond in die Gebied oewer aan die Elandsrivier stroom af van die Lindleyspoortdam ten opsigte waarvan die Direkteur-generaal: Waterwese, kragtens artikel 62 (2C) (a) van die Wet, ’n bepaling gemaak het met betrekking tot die besproei-bare oppervlakte sowel as die bestaande besproeiingsontwikkeling wat tydens ’n opname in die Gebied gevind is.

“existing water work” means a water work which was used for the abstraction, impoundment, storage or use of public water at any time during the qualifying period for the purpose of irrigating the whole or a portion of that piece of land;

“irrigable area” means the irrigable area of a piece of land situated in the Area within a distance of 1,6 kilometres horizontally from the river-bank and a static pumping height of 45 metres vertically above the bed of the Elands River as measured at the nearest rectangular point opposite the public stream concerned and which is in the opinion of the Director-General: Water Affairs, suitable for the cultivation of crops under irrigation;

“piece of land” means a piece of land which, on the date of inclusion thereof in the Area, was registered as a separate surveyed unit in the office of the registrar of deeds concerned;

“piece of land with existing irrigation development”, with regard to the Area, means a piece of land within the Area which —

- (a) was registered in the office of a registrar of deeds on the date of inclusion thereof in the Area;
- (b) was wholly or partly irrigated with public water, whether lawfully or unlawfully at any time during the qualifying period;

“provisional right” means the quantity of public water which may be abstracted, impounded, stored or used for irrigation purposes in terms of section 62 (2A) (a) of the Act in respect of a piece of land with existing irrigation development and which is in the opinion of the Director-General: Water Affairs sufficient for the irrigation of the area indicated opposite each piece of land in the Schedule to this notice;

“qualifying period”, with regard to the Area, means the period of 12 months immediately preceding the date of inclusion of a piece of land in the Area;

“the Act”, means the Water Act, 1956 (Act No. 54 of 1956);

“the Area” means that portion of the Lindleyspoort Government Irrigation Area established by Proclamation No. 123 of 5 July 1937 in terms of section 98 of the Irrigation and Conservation of Waters Act, 1912, which in terms of section 59 (3) (a) of the Water Act, 1956, is deemed to be the Lindleyspoort Government Water Control Area, established in terms of section 59 (1) (a) and (b) of the Water Act, 1956, promulgated on 13 July 1956.

1. I, Jacob Albertus van Wyk, Deputy Minister of Water Affairs, acting on behalf of the Minister of Water Affairs under the powers vested in him by section 62 (2D) (a) of the Act, publish in the accompanying Schedule hereof a list of all the pieces of land in the Area riparian to the Elands River downstream of the Lindleyspoort Dam in respect of which the Director-General: Water Affairs has made a determination in terms of section 62 (2C) (a) of the Act, with regard to the irrigable area as well as the existing irrigation development which was found in the Area during a survey.

2. Enigiemand wat hom veronreg voel deur die Direkteur-generaal se bepaling wat betref die besproei-bare oppervlakte of bestaande besproeiingsontwikkeling op 'n stuk grond soos in die Bylae hiervan aange-toon, of omdat daar geen bepaling ten opsigte van 'n bepaalde stuk grond gedoen is nie, kan ingevolge arti-kel 62 (2D) (a) van die Wet, binne negentig (90) dae vanaf die datum van publikasie van hierdie kennis-gewing enige beswaar tesame met die nodige bewys-stukke, kaarte, verklarings en getuienis ter staving van die beswaar, skriftelik aan die Direkteur-generaal, Departement van Waterwese, Privaatsak X313, Preto-ria, 0001, voorlê vir 'n beslissing oor sy beswaar deur die Minister van Waterwese. Enigiemand wat hom veronreg voel deur die Minister se beslissing kan inge-volge artikel 62 (2D) (c) van die Wet, na skriftelike kennisgewing aan die Minister, binne sestig (60) dae vanaf die datum waarop hy van die Minister se beslis-sing verwittig is, by die Waterhof appêl teen die beslis-sing aanteken, en die Waterhof kan na die ondersoek wat die hof wenslik ag, die Minister se beslissing hand-haaf of 'n ander bevel maak wat die hof goedvind.

3. Enige beswaar teen die bepaling van die besproei-bare oppervlakte soos in die Bylae ten opsigte van 'n bepaalde stuk grond aangedui, moet gestaaf word deur 'n kaart volgens skaal deur 'n landmeter voorberei, waarop die ligging en omvang van enige verdere oppervlakte wat na bewering, besproei-bare grond is, aangetoon word, met inagneming van die deur die Minister goedgekeurde perke met betrekking tot af-stand vanaf die rivieroewer en statiese pomphoogte vertikaal bokant die rivierbedding. Voorts word 'n verslag deur 'n aanvaarbare grondkundige vereis met betrekking tot die beweerdde besproei-bare oppervlaktes wat op die kaart aangetoon word, waarin gesertifiseer word dat sodanige grond wel besproei-baar is.

4. Enige beswaar teen die bepaling van die bestaande besproeiingsontwikkeling soos in die Bylae ten opsigte van 'n bepaalde stuk grond aangetoon, moet gestaaf word deur 'n kaart volgens skaal deur 'n landmeter voorberei, waarop die ligging en grootte van die beweerdde bestaande besproeiingsontwikkeling aange-toon word, asook elke pomp en waterleiding wat soda-nige ontwikkeling bedien het, sowel as 'n aanduiding van die grootte, kapasiteit of dravermoe daarvan. Die blote bestaan of aanwesigheid van bewerkte lande en waterverspreidingswerke sal nie noodwendig as afdoende bewys aanvaar word dat sodanige lande gedu-rende die kwalifiserende tydperk wel besproei was nie. Elke ontrekkingspunt uit 'n openbare stroom moet op die kaart aangedui word en ten opsigte van 'n pomp-installasie word volle besonderhede van die pomp, aan-drywing, leweringsvermoe, in- en uitlate sowel as pomphoogte vereis. Enige aanspraak op bestaande besproeiingsontwikkeling kan slegs erken word tot die mate waartoe 'n bestaande waterwerk gedurende die kwalifiserende tydperk in staat was om die beweerdde bestaande besproeiingsontwikkeling voordelig en doel-treffend te bedien. In 'n geval waar daar van die getuie-nis van 'n ander persoon of instansie gebruik gemaak word om 'n aanspraak of beswaar te staaf, moet dit 'n persoon of instansie wees wat nie tevore betrokke was by die maak van 'n soortgelyke opname in die betrokke Gebied nie. Die reg word voorbehou om enige verdere besonderhede en getuienis aan te vra en in te win vir die kontrolering en staving van enige aanspraak of beswaar.

2. Any person who feels aggrieved by the Director-General's determination with regard to the irrigable area or existing irrigation development on a piece of land as indicated in the Schedule hereto, or because no determination has been made in respect of any parti-cular piece of land, may in terms of section 62 (2D) (a) of the Act submit an objection in writing within ninety (90) days from the date of publication of this notice, together with the necessary evidence, charts, state-ments and proof to substantiate the objection, to the Director-General, Department of Water Affairs, Pri-vate Bag X313, Pretoria, 0001, for a decision on the objection by the Minister of Water Affairs. Any person who feels aggrieved by the Minister's decision, may in terms of section 62 (2D) (c) of the Act, after written notice to the Minister, lodge an appeal to the Water Court against the decision within sixty (60) days from the date on which he was informed of the Minister's decision and the Water Court may, after any investiga-tion which it deems necessary, confirm the Minister's decision or make such other order as the court deems fit.

3. Any objection to the determination of the irrigable area as indicated in the Schedule in respect of a certain piece of land must be substantiated by a chart compiled according to scale by a land surveyor on which the loca-tion and extent of any further alleged irrigable land is shown, taking into account the limits approved by the Minister with regard to distance from the river-bank and static pumping height vertically above the river-bed. Furthermore, a report by an approved agronomist is required with regard to the alleged irrigable areas which are shown on the chart, in which it is certified that such land is in fact irrigable.

4. Any objection to the determination of the existing irrigation development as indicated in the Schedule in respect of a certain piece of land must be substantiated by a chart compiled according to scale by a land sur-veyor on which the location and extent of the alleged existing irrigation development is shown, as well as each pump and aquaduct which served such develop-ment and an indication of the size, capacity or carrying capacity thereof. The mere existence or presence of cultivated lands and water distribution works will not necessarily be accepted as conclusive evidence that such lands were in fact irrigated during the qualifying period. Each point of abstraction from a public stream must be indicated on the chart and, in respect of a pumping installation, full particulars are required of the pump, motor, delivery capacity, in- and outlets and pumping height. Any claim to existing irrigation development can only be acknowledged to the extent to which an existing water work was capable of serving the alleged existing irrigation development effectively and beneficially during the qualifying period. In a case where the evidence of another person or body is used to substantiate a claim or an objection, such person or body must not have been previously involved in a simi-lar survey in the Area concerned. The right is reserved to request and to obtain any additional particulars and evidence for the verification and confirmation of any claim or objection.

5. Die Minister sal na finalisering van enige beswaar of appèl met inagneming van die besproeibare oppervlaktes en bestaande besproeiingsontwikkeling soos ingevolge artikel 62 (2D) van die Wet bepaal, kragtens artikel 62 (2E) van die Wet, die finale toekenning van water aan elke stuk grond in die Gebied bepaal aan die hand van die beskikbare hoeveelheid openbare water, welke toekenning ingevolge artikel 62 (2F) van die Wet in die *Staatskoerant* gepubliseer sal word en alle voorlopige regte en vergunnings voorheen verleen, sal vervang.

6. Geen nuwe waterwerk mag opgerig of enige verandering aan 'n bestaande waterwerk aangebring word nie sonder die voorafverkryging van 'n magtiging ingevolge artikel 62 (2H) (a) van die Wet. Aansoeke in dié verband moet gerig word aan die Streekdirekteur: Transvaal, Departement van Waterwese, Privaatsak X124, Pretoria, 0001.

7. Indien 'n stuk grond na die datum van insluiting daarvan by die Gebied onderverdeel is of word of staan te word, kan die Minister ingevolge artikel 62 (6) (b) (i) van die Wet, die betrokke eienaar magtig om na goeddunke, of, indien 'n gedeelte van bedoelde stuk grond wat na aanleiding van so 'n onderverdeling tot stand gekom het, reeds oorgedra is, by ooreenkoms met die eienaar van daardie gedeelte, die deel van bedoelde hoeveelheid openbare water te bepaal wat na so 'n onderverdeling ten opsigte van elke gedeelte van daardie stuk grond wat aldus tot stand gekom het, uitge neem, opgedam, opgegaar of gebruik kan word. By versuim van die betrokke eienaar(s) om so 'n ooreenkoms aan te gaan, kan die Minister ingevolge artikel 62 (6) (bA) die eienaar(s) skriftelik gelas om binne 'n bepaalde tydperk so 'n bepaling te maak of, na gelang van die geval, so 'n ooreenkoms aan te gaan. Sou die eienaar(s) egter versuim of nie in staat wees om binne die aldus bepaalde tydperk so 'n ooreenkoms te bereik nie, kan die Minister die eienaar(s) skriftelik gelas om binne sodanige verdere tydperk as wat hy goetvind, die aangeleentheid vir beslegting deur arbitrasie of aan 'n bevoegde hof voor te lê. By versuim van die eienaar(s) om aan die lasgewing te voldoen, word enige voorlopige reg, vergunning of toekenning ten opsigte van die betrokke stuk grond, opgeskort tot tyd en wyl daar aan die lasgewing voldoen word, tensy die Minister anders bepaal.

8. Hierdie kennisgewing vervang Goewermementskennisgewing No. 461 van 18 Maart 1988.

J. A. VAN WYK,
Adjunk-minister van Waterwese.

5. The Minister shall, after finalising any objection or appeal, determine the final allocation of water to each piece of land in the Area in terms of section 62 (2E) of the Act, on the basis of the quantity of public water available, taking into account the irrigable areas and existing irrigation development as determined in terms of section 62 (2D) of the Act, which allocation shall be published in the *Government Gazette* in terms of section 62 (2F) of the Act and shall replace all provisional rights and permissions previously granted.

6. No new water work may be erected or any alteration made to an existing water work without first obtaining an authorization in terms of section 62 (2H) (a) of the Act. Applications in this regard must be forwarded to the Regional Director: Transvaal, Department of Water Affairs, Private Bag X124, Pretoria, 0001.

7. If a piece of land was or is being or is to be subdivided after the date of inclusion thereof in the Area, the Minister may, in terms of section 62 (6) (b) (i) of the Act, authorize the respective owner to determine at his discretion, or, if a portion of the said piece of land created in pursuance of any subdivision has already been transferred, by agreement with the owner of that portion that part of the said quantity of public water which may in respect of each portion of that piece of land which was thus created, be abstracted, impounded, stored or used after such subdivision. Should the said owner(s) fail to reach such an agreement, the Minister may, in terms of section 62 (6) (bA) of the Act, direct such owner(s) in writing to make such a determination or, as the case may be, to reach such an agreement within a certain period. Should the owner(s) however, fail or be unable to reach such an agreement within the period so determined, the Minister may in writing direct such owner(s) to submit, within such further period as he may determine, the matter for settlement by arbitration or to a competent court. Should the owner(s) fail to comply with the direction, any provisional right, permission or allocation in respect of the said piece of land, shall, unless the Minister determines otherwise, be suspended until such time as the direction is complied with.

8. This Government Notice is substituted for Government Notice No. 461, dated 18 March 1988.

J. A. VAN WYK,
Deputy Minister of Water Affairs.

BYLAE/SCHEDULE

LINDLEYSPOORT-STAATSWATERBEHEERGEBIED, DISTRIK SWARTRUGGENS, TRANSVAAL
LINDLEYSPOORT GOVERNMENT WATER CONTROL AREA, DISTRICT OF SWARTRUGGENS, TRANSVAAL

Item No.	Beskrywing van stuk grond Description of piece of land	Totale Total extent (ha)	Naam van geregisteerde eienaar Name of registered owner	Geboorte- datum Date of birth	Aandeel besit Share owned	Besproeibare oppervlakte Irrigable area (ha)	Bestaande besproeiingsontwikkeling Existing irrigation development—	
							deur middel van pompe op die rivier by means of pumps on the river (ha)	deur middel van inlusting kragtens artikel 63 onder die Staatskanale by means of scheduling in terms of section 63 under (State canals) (ha)
BESTERSHOEK 227 JP								
1.	Ged./Ptn 15	44,3069	Oosthuizen, J. H.	53-01-17	1	34,8	18,3	Nul/Nil
2.	Ged./Ptn 18	51,7131	Le Roux, H. A. F.	26-05-26	1	47,8	19,8	12,9
3.	Ged./Ptn 19	39,1292	Benecke, F. C.	43-11-18	1	30,5	4,2	25,7
4.	Ged./Ptn 36	64,2884	Pienaar, A. D. P.	49-03-24	1	37,2	11,8	17,2
5.	Ged./Ptn 41	5,0003	Swart, D. J.	45-01-12	1	3,8	0,3	3,5
6.	Ged./Ptn 43	134,3480	Swart, D. J.	45-01-12	1	58,9	17,8	13,7
7.	Ged./Ptn 44	27,1252	Els, N. J. H.	27-10-11	1	24,1	25,2	13,7
8.	Ged./Ptn 51	42,5019	Nell, J. J. A.	28-03-29	1	18,5	1,5	9,0
9.	Ged./Ptn 75	26,8840	Le Roux, J. A.	24-09-13	1	21,9	4,7	17,2
HOOGENBOMEN 232 JP								
10.	Ged./Ptn 6	609,6913	Le Roux, J. J.	35-07-01	1	159,0	19,0	25,8
11.	Rest. Ged./Rem Ptn 8	171,6536	Viljoen, D. I.	27-03-13	1	52,9	3,0	Nul/Nil
12.	Rest. Ged./Rem Ptn 9	125,6030	Viljoen, D. I.	27-03-13	1	57,4	15,7	Nul/Nil
13.	Rest. Ged./Rem Ptn 10	71,7424	Vermeulen, J. E.	39-09-19	1	57,8	23,6	17,2
14.	Ged./Ptn 11	277,3826	Van Staden, J. F.	35-10-01	1	116,0	15,7	17,2
15.	Ged./Ptn 12	47,96	Van Staden, J. F.	35-10-01	1	Nul/Nil	Nul/Nil	17,2
16.	Ged./Ptn 15	148,6750	Wenhold, C. H.	49-06-23	1	107,0	32,4	Nul/Nil
17.	Ged./Ptn 18	102,2721	Vermeulen, P. C.	28-05-27	1	68,8	17,9	17,2
KROKODILDRIFT 217 JP								
18.	Ged./Ptn 2	7,6673	Krokodil drift Landgoed (Pty) Ltd	—	1	4,9	0,2	3,5
19.	Ged./Ptn 9	2,0469	Krokodil drift Landgoed (Pty) Ltd	—	1	1,2	0,2	0,9
20.	Ged./Ptn 16	8,3646	Van Straten, A. M. S.	43-09-28	1	7,2	7,2	4,3
21.	Ged./Ptn 17	8,3646	Van Straten, A. M. S.	43-09-28	1	7,4	3,6	4,3
22.	Ged./Ptn 18	165,9071	Du Plooy, J.	50-09-09	1	47,1	14,1	8,6
23.	Rest. Ged./Rem Ptn 19	93,0202	Heymans, P. J.	36-03-01	1	33,4	25,1	17,2
24.	Ged./Ptn 20	616,7815	Krokodil drift Landgoed (Pty) Ltd	—	1	101,1	13,1	Nul/Nil
25.	Ged./Ptn 30	187,1651	Hindley, J. R.	42-05-01	1	80,1	15,8	17,2
26.	Ged./Ptn 31	93,5826	Hindley, J. R.	42-05-01	1	50,8	22,3	17,2
27.	Ged./Ptn 32	171,6280	Du Plooy, J.	50-09-09	1	43,0	14,4	8,6
28.	Ged./Ptn 37	412,5101	Breytenbach, T. J.	23-05-29	1 1/2 }	58,2	7,5	Nul/Nil
			Lewis, J. C.	36-04-28				
KROMDRAAI 229 JP								
29.	Rest. Ged./Rem Ptn 3	84,8723	Cronje, P. H. S.	43-10-01	1	37,0	3,1	13,7
30.	Ged./Ptn 4	49,2908						

Item No.	Beskrywing van stuk grond Description of piece of land	Totale Total extent (ha)	Naam van geregistreerde eienaar Name of registered owner	Geboorte- datum Date of birth	Aandeel besit Share owned	Besproeibare oppervlakte Irrigable area (ha)	Bestaande besproeiingsontwikkeling Existing irrigation development—	
							deur middel van pompe op die rivier by means of pumps on the river (ha)	deur middel van inlysting kragtens artikel 63 onder die Staatskanale by means of scheduling in terms of sections 63 under (State canals) (ha)
31.	Ged./Ptn 5.....	42,5433	Cronje, P. H. S.	43-10-01	1	14,6	0,6	6,9
32.	Ged./Ptn 6.....	42,5433	Cronje, P. H. S.	43-10-01	1	19,7	Nul/Nil	6,9
33.	Ged./Ptn 8.....	243,8874	Vermeulen, J. J. J.	34-03-29	1	81,4	10,5	17,2
LINDLEYSPOORT 220 JP								
34.	Ged./Ptn 4.....	11,1906	Potgieter, W. J.	28-08-26	19/20	9,5	0,6	8,1
			Hattingh, J. P.	28-08-26	9/20			
35.	Ged./Ptn 6.....	2,7580	Vos, C. I.	33-05-03	1	2,8	Nul/Nil	2,6
36.	Ged./Ptn 11.....	3,1089	Esterhuizen, J. L. O.	45-06-20	1	3,0	Nul/Nil	2,6
37.	Ged./Ptn 12.....	2,8376	Erasmus, J. H.	22-03-02	1	2,9	Nul/Nil	2,9
38.	Ged./Ptn 13.....	3,1579	Erasmus, J. H.	22-03-02	1	3,2	0,6	2,6
39.	Ged./Ptn 22.....	3,7774	Oosthuizen, A. M.	41-11-26	1	3,3	0,3	2,8
40.	Ged./Ptn 23.....	3,5340	Oosthuizen, A. M.	41-11-26	1	3,2	0,3	2,6
41.	Ged./Ptn 24.....	3,5197	Oosthuizen, A. M.	41-11-26	1	3,3	0,2	2,6
42.	Ged./Ptn 25.....	3,5571	Oosthuizen, A. M.	41-11-26	1	3,0	Nul/Nil	2,6
43.	Ged./Ptn 26.....	5,2666	Oosthuizen, A. M.	41-11-26	1	4,0	0,3	3,5
44.	Ged./Ptn 27.....	7,8079	Oosthuizen, A. M.	41-11-26	1	7,3	1,0	5,2
45.	Rest. Ged./Rem Ptn 28.....	5,4247	Oosthuizen, A. M.	41-11-26	1	4,8	1,3	3,5
46.	Rest. Ged./Rem Ptn 29.....	3,6201	Oosthuizen, A. M.	41-11-26	1	3,4	1,2	2,2
47.	Ged./Ptn 34.....	3,8711	Potgieter, P. J.	33-10-12	1	2,8	1,0	1,8
48.	Ged./Ptn 35.....	2,2074	Potgieter, P. J.	33-10-12	1	1,8	1,3	0,5
49.	Ged./Ptn 36.....	7,8197	Potgieter, P. J.	33-10-12	1	4,9	0,5	2,9
50.	Ged./Ptn 37.....	2,6971	Naude, F. C.	53-01-26	1	2,3	0,8	1,3
51.	Ged./Ptn 38.....	16,1642	Bronkhorst, J. A.	33-06-18	8/63			1,5
			Erasmus, J. H.	22-03-02	39/63	11,0	7,4	3,3
			Esterhuizen, J. L. O.	45-06-20	16/63			7,5
52.	Ged./Ptn 56.....	334,3487	Naude, F. C.	53-01-26	1	144,0	15,7	3,0
53.	Rest. Ged./Rem Ptn 57.....	29,0507	Oosthuizen, P. W.	42-11-07	1	27,1	0,6	24,0
54.	Ged./Ptn 62.....	235,7967	Potgieter, P. J.	33-10-12	1	65,8	8,2	Nul/Nil
	(a) Rest. Ged./Rem Ext 62.....	190,1721	(Gekonsolideer met Rest. Ged. 85, Ged. 66 en Ged. 117 om Ged. 127 te vorm/Consolidated with Rem Ext 85, Ptn 66 and Ptn 117 to form Ptn 127. Kyk item/See item 66).					
	(b) Ged./Ptn 122.....	17,8150	RSA					
	(c) Ged./Ptn 124.....	27,8096	(Gekonsolideer met Ged. 125 om Ged. 126 te vorm/Consolidated with Ptn 125 to form Ptn 126. Kyk item/See item 65)					
55.	Ged./Ptn 65.....	0,6838	Potgieter, P. J.	33-10-12	1	0,6	0,1	0,5
56.	Ged./Ptn 66.....	2,3754	Potgieter, P. J.	33-10-12	1	1,2	1,2	1,2
			(Gekonsolideer met Rest. Ged. 85, Rest. Ged. 62 en Ged. 117 om Ged. 127 te vorm/Consolidated with Rem Ext 85, Rem Ext 62 and Ptn 117 to form Ptn 127. Kyk item/See item 66)					

Item No.	Beskrywing van stuk grond Description of piece of land	Totale Total extent (ha)	Naam van geregisteerde eienaar Name of registered owner	Geboortedatum Date of birth	Aandeel besit Share owned	Besproeibare oppervlakte Irrigable area (ha)	Bestaande besproeiingsontwikkeling Existing irrigation development—	
							deur middel van pompe op die rivier by means of pumps on the river (ha)	deur middel van inlysting kragtens artikel 63 onder die Staatskanale by means of scheduling in terms of section 63 under (State canals) (ha)
57.	Ged./Ptn 85 (a) Rest. Ged./Rem Ptn 85 (b) Ged./Ptn 117 (c) Ged./Ptn 125	85,1835 21,8290 4,7397 26,6148	McDonald, C. (Gekonsolideer met Rest. Ged. 62 en Ged. 66 om Ged. 127 te vorm/Consolidated with Rem Ext 62 and Ptn 66 to form Ptn 127. Kyk item/Sec item 66) (Gekonsolideer met Ged. 124 om Ged. 126 te vorm/Consolidated with Ptn 124 to form Ptn 126. Kyk item/Sec item 65)	38-05-18	1	41,5	10,3	13,0
58.	Ged./Ptn 89	9,9786	Oosthuizen, A. M.	41-11-26	1	8,9	4,1	4,8
59.	Ged./Ptn 90	5,4247	Oosthuizen, A. M.	41-11-26	1	4,8	1,7	3,4
60.	Ged./Ptn 91	3,6302	Oosthuizen, A. M.	41-11-26	1	3,3	1,1	2,2
61.	Ged./Ptn 95	2,8147	Vos, P. J.	30-08-14	1/2	2,8	Nul/Nil	2,6
62.	Ged./Ptn 103	15,2335	Vos, P. R. P.	42-11-07	1	14,2	0,4	12,0
63.	Ged./Ptn 118	4,3622	Oosthuizen, P. W.	33-10-12	1	3,2	2,4	Nul/Nil
64.	Ged./Ptn 119	5,2787	Potgieter, P. J.	33-10-12	1	3,8	3,4	Nul/Nil
65.	Ged./Ptn 126 [Kyk items/See items 54 (c) en/and 57 (c)]	54,4244	Reinecke, R. E.	49-08-03	1			14,2
66.	Ged./Ptn 127 [kyk items/See items 54 (a), 56 (c) en/and 57 (b)]	219,1206	Potgieter, H. H. L. M. Potgieter, P. J.	33-10-12	1/2			1,2
RIETFontein 230 JP								
67.	Rest. Ged./Rem. Ptn 6	119,0848	Wenhold, R.	48-08-10	1	33,4	16,2	17,2
68.	Ged./Ptn 18	40,0258	Wenhold, R.	48-08-10	1	25,2	9,7	15,0
69.	Ged./Ptn 37	29,7727	Wenhold, R.	48-08-10	1	28,2	5,8	17,2
70.	Rest. Ged./Rem. Ptn 39	29,7187	Fourie, J. F. de W.	43-02-25	1	23,5	Nul/Nil	17,2
71.	Ged./Ptn 41	25,4360	Fourie, C.	11-10-20	1	19,5	10,9	8,6
RIETVLY 219 JP								
72.	Ged./Ptn 19	9,6912	Esterhuizen, H. S. C.	10-02-06	1	7,9	2,5	4,3
SCHOONGEZIGT 218 JP								
73.	Ged./Ptn 3	8,2884	Visser, L. J.	40-10-20	1	4,4	4,4	Nul/Nil
74.	Ged./Ptn 4	11,9058	Visser, L. J.	40-10-20	1	7,3	6,6	Nul/Nil
75.	Rest. Ged./Rem. Ptn 5	6,2431	Visser, L. J.	40-10-20	1	5,1	4,5	Nul/Nil
76.	Rest. Ged./Rem. Ptn 6	188,0131	Landsberg R. J. P.	18-03-18	1	81,6	33,8	15,0
77.	Ged./Ptn 8	876,5206	Malan, P. D. Du Plooy, F. D. J. S. Van Tonder, E. S. Van Tonder, J. A. P. Malan, P. D. Visser, L. J.	40-01-06 14-11-03 17-02-11 47-12-28 40-01-06 40-10-20	0,4500 0,1056 0,1111 0,3333 1/4 1/4	123,4 56,6 64,4 129,3 65,9	26,6 Nul/Nil Nul/Nil Nul/Nil 15,5	21,4 14,2 Nul/Nil 28,5 5,4
78.	Rest. Ged./Rem. Ptn 9	397,4879	Visser, L. J.	40-10-20	1	66,8	19,8	16,1
79.	Ged./Ptn 12	137,6174	Visser, L. J.	40-10-20	1	72,3	16,9	8,6
80.	Rest. Ged./Rem. Ptn 15	152,3883	Visser, L. J.	40-10-20	1	1,7	1,7	6,9
81.	Ged./Ptn 19	3,1902	Visser, L. J.	40-10-20	1	10,1	1,5	Nul/Nil
82.	Ged./Ptn 40	100,9232	Visser, L. J.	40-10-20	1	22,8	2,2	Nul/Nil
83.	Ged./Ptn 41	27,2191	Visser, L. J.	40-10-20	1	63,3	14,2	Nul/Nil
84.	Ged./Ptn 59	194,0087	Landsberg, R. J. P.	18-03-18	1			Nul/Nil

ALGEMENE KENNISGEWINGS**KENNISGEWING 2 VAN 1990****DEPARTEMENT VAN LANDBOU**

WET OP AGENTSCHAPSVERKOPING VAN LANDBOUPRODUKTE, 1975 (WET No. 12 VAN 1975)

KENNISGEWING VAN STAKING VAN BESIGHEID

Ingevolge artikel 14 van die Wet op Agentschapsverkoop van Landbouprodukte, 1975 (Wet No. 12 van 1975), word hierby vir algemene inligting bekendgemaak dat Becker en Prinsloo (Welkom) (Edms.) Bpk., wat te Welkom as markagent besigheid gedryf het, besigheid as sodanig met ingang van 31 Desember 1988 gestaak het.

H. S. HATTINGH,
Direkteur-generaal: Landbou.
(5 Januarie 1990)

KENNISGEWING 3 VAN 1990**DEPARTEMENT VAN MANNEKRAG**

WET OP ARBEIDSVERHOUDINGE, 1956

INTREKKING VAN REGISTRASIE VAN 'N WERKGEWERSORGANISASIE

Ek, Johannes Theodorus Crouse, Assistent-nywerheidsregistrator, maak hierby kragtens artikel 14 (1) van die Wet op Arbeidsverhoudinge, 1956, bekend dat aangesien ek rede het om te vermoed dat die South African Brewing Industry Employers' Association nie as werkgewersorganisasie funksioneer nie, sy registrasie ingetrek sal word, tensy redes daarteen binne 'n tydperk van 30 dae vanaf die datum van publikasie van hierdie kennisgewing aangevoer word.

J. T. CROUSE,
Assistent-nywerheidsregistrator.
(5 Januarie 1990)

KENNISGEWING 4 VAN 1990**DEPARTEMENT VAN MANNEKRAG**

WET OP ARBEIDSVERHOUDINGE, 1956

AANSOEK OM REGISTRASIE VAN 'N VAK-VERENIGING

Ek, Johannes Theodorus Crouse, Assistent-nywerheidsregistrator, maak ingevolge artikel 4 (2) van die Wet op Arbeidsverhoudinge, 1956, hierby bekend dat 'n aansoek om registrasie as vakvereniging ontvang is van die Food Workers Council of South Africa. Besonderhede van die aansoek word in onderstaande tabel verstrek.

Enige geregistreerde vakvereniging wat teen die aansoek beswaar maak, word versoek om binne een maand na die datum van publikasie van hierdie kennisgewing sy beswaar skriftelik by my in te dien, p/a die Departement van Mannekrag, Mannekraggebou 123A, Schoemanstraat 215, Pretoria (posadres: Privaatsak X117, Pretoria, 0001).

GENERAL NOTICES**NOTICE 2 OF 1990****DEPARTMENT OF AGRICULTURE**

AGRICULTURAL PRODUCE AGENCY SALES ACT, 1975 (ACT No. 12 OF 1975)

NOTICE OF CESSATION OF BUSINESS

It is hereby notified in terms of section 14 of the Agricultural produce Agency Sales Act, 1975 (Act No. 12 of 1975), for general information that Becker and Prinsloo (Welkom) (Pty) Ltd who carried on business as a market agent at Welkom has ceased business as such with effect from 31 December 1988.

H. S. HATTINGH,
Director-General: Agriculture.
(5 January 1990)

NOTICE 3 OF 1990**DEPARTMENT OF MANPOWER**

LABOUR RELATIONS ACT, 1956

CANCELLATION OF REGISTRATION OF AN EMPLOYERS' ORGANISATION

I, Johannes Theodorus Crouse, Assistant Industrial Registrar, hereby notify, in terms of section 14 (1) of the Labour Relations Act, 1956, that as I have reason to believe that the South African Brewing Industry Employers' Association is not functioning as an employers' organisation its registration will be cancelled unless cause to the contrary is shown within a period of 30 days from the date of publication of this notice.

J. T. CROUSE,
Assistant Industrial Registrar.
(5 January 1990)

NOTICE 4 OF 1990**DEPARTMENT OF MANPOWER**

LABOUR RELATIONS ACT, 1956

APPLICATION FOR REGISTRATION OF A TRADE UNION

I, Johannes Theodorus Crouse, Assistant Industrial Registrar, do hereby, in terms of section 4 (2) of the Labour Relations Act, 1956, give notice that an application for registration as a trade union has been received from the Food Workers Council of South Africa. Particulars of the application are reflected in the subjoined table.

Any registered trade union which objects to the application is invited to lodge its objection in writing with me, c/o the Department of Manpower, 123A Manpower Building, 215 Schoeman Street, Pretoria (postal address: Private Bag X117, Pretoria, 0001), within one month of the date of publication of this notice.

TABEL

Naam van vakvereniging.—Food Workers Council of South Africa.

Datum waarop aansoek ingedien is.—4 Julie 1989.

Belange en gebied ten opsigte waarvan aansoek gedoen word.—Alle persone in diens in die Voedselverwerkingsbedryf in die landdrostdistrikte Albany, Aliwal-Noord, Elliot, Graaff-Reinet, Hankey, Indwe, King William's Town, Kirkwood, Lady Grey, Middelburg (Kaap), Molteno, Oos-Londen, Port Elizabeth, Queenstown, Stutterheim en Uitenhage.

“Voedselverwerkingsbedryf” beteken die bedryf waarin voedsel volgens enige metode verwerk word vir menslike en/of dierlike verbruik, en sonder om die omvang van hierdie omskrywing te beperk, omvat dit die volgende sektore:

Bak: Die bak van brood en banket en die vervaardiging van enige verbruikswaar of bestanddeel wat by bak gebruik word;

Beskuitjievervaardiging: Die vervaardiging van beskuitjies, wafeltjies en horinkies;

Brouery: Die brou van bier en moutdrank;

Koeldrank: Die vervaardiging of die bottel van koeldrank;

Suiwel: Sluit in die bottel of verpakking, verkoop en verspreiding van volmelk of afgeroomde melk en die vervaardiging van room, botter, kaas, joghurt, karringmelk, roomys en melkpoeier;

Vrugte- en groenteprosessering: Die verwerking, verpakking of preserving van vrugte en groente, met inbegrip van die volgende produkte: Ingemaakte of gebottelde vrugte of groente, bevrore vrugte en groente, konfyt, vrugtesap, vrugtekwasse en stroopdranke, droëvrugte en fyn gesnipperde droëvrugte, glans- en gekristalliseerde vrugte, sop, piekel, souse, kruie, speserye, kondimente, blatjang, babakosse en siekekosse, ontwaterde vrugte of groente;

Visverwerking: Die verwerking, verpakking of preserving van vis, seekreef, perlemoen, vismeel of visolie; *Vleisverpakking en -verwerking:* Die slag van lewende hawe, die voorbereiding en preserving van vleis, polonie, spek, wors en rou velle en huide, en dit omvat die inmaak van vleis;

Maal: Die maal van koring, mielies of ander graansoorte; die maal van grondboontjies en oliesade en die vervaardiging of verpakking van die volgende produkte: Koringmeelblom, meliameelblom en melie, melierys, stampmielies, mabêlameel, rys, ontbytgrane, dierevoedsel, eetbare olies en ander olie, koek, margarien, grondboontjiebotter, macaroni, spaghetti, sago, tapioka, boontjies, ertjies en lensies, glukose en stysels;

Pluimvee en Eiers: Die slag van pluimvee, die voorbereiding en preserving van pluimveevleis en die verpakking en verspreiding vir verkoop van eiers;

Neute en Versnaperings: Die verpakking en verwerking van eetbare neute en versnaperings;

Suikervervaardiging en -raffinerings: Die raffinerings, verwerking, produsering en verpakking van suiker, suikrose en suikernuwe produkte;

TABLE

Name of trade union.—Food Workers Council of South Africa.

Date on which application was lodged.—4 July 1989.

Interests and area in respect of which application is made.—All persons engaged in the Food Processing Industry in the Magisterial Districts of Albany, Aliwal North, East London, Elliot, Graaff-Reinet, Hankey, Indwe, King Williams Town, Kirkwood, Lady Grey, Middelburg (C.P.), Molteno, Port Elizabeth, Queenstown, Stutterheim and Uitenhage.

“Food Processing Industry” means the industry in which food is processed by any means for human and/or animal consumption and, without limiting the scope of this definition, includes the following sectors:

Baking: The baking of bread and confectionery and the manufacture of any commodity or ingredient used in baking;

Biscuit Manufacturing: The manufacture of biscuits, wafers, and cones;

Brewing: The brewing of beer and malt liquor;

Cooldrinks: The manufacture or bottling of cool-drinks;

Dairy: Includes the bottling or packaging, sale and distribution of whole or skimmed milk, and the manufacture of cream, butter, cheese, yoghurt, butter-milk, ice-cream and milk powder;

Fruit and Vegetable Processing: The processing, packaging or preserving of fruit and vegetables, including the following products: Canned or bottled fruit or vegetables, frozen fruit and vegetables, jams, fruit juices, squashes and cordials, dried fruit and minced dried fruit, glacé and crystallised fruit, soups, pickles, sauces, herbs, spices, condiments, chutney, infant and invalid foods, dehydrated fruit or vegetables;

Fish Processing: The processing, packaging or preserving of fish, rock lobster, perlemoen, fish meal or fish oil;

Meat packaging and Processing: The slaughtering of livestock, the preparation and preservation of meat, polony, bacon, sausage, and raw skins and hides, and includes meat canning;

Milling: The milling of wheat, maize or other cereals, the milling of peanuts and oil seeds, and the manufacture or packaging of the following products: Wheat flour, maize flour and meal, maize rice, samp, mabela meal, rice, breakfast cereals, animal feeds, edible oils and other oil, cake, margarine, peanut butter, macaroni, spaghetti, sago, tapioca, beans, peas and lentils, glucose and starches;

Poultry and Eggs: The slaughtering of poultry, the preparation and preservation of poultry meat, and the packing and distribution for sale of eggs;

Nuts and Snacks: The packaging and processing of edible nuts and snacks;

Sugar Manufacturing and Refining: The refining, processing, production and packaging of sugar, sucrose and sugar by-products;

Lekkergoed- en Sjokoladevervaardiging: Die vervaardiging van lekkergoed en sjokolade en enige verbruikswaar of bestanddeel wat vir die vervaardiging van lekkergoed of sjokolade gebruik word;

Tee, Koffie en Sigorei: Die verpakking of verwerking van tee, koffie of sigorei, die brand van koffie en sigorie en die vervaardiging van kitstee- of kitskoffiepoeier, essense of ekstrakte;

Wyn- en Spiritualieëvervaardiging: Die vervaardiging van wyn en spiritualieë;

Tabak: Die verwerking en vervaardiging van tabak en sy derivaatprodukte;

Koelkamers, Verspreiding en Varsproduktemarkte: Die preserving van voedsel in koelkamers, die verspreiding van voedsel en die bemaking van vars produkte.

Posadres van applikant.—Posbus 3629, Noordeinde, Port Elizabeth, 6056.

Kantooradres van applikant.—Print House, Kamer 5, Kempstonweg 365, Korsten, Port Elizabeth.

Die aandag word gevestig op onderstaande vereistes van artikel 4 van die Wet:

- (a) Die mate waarin 'n beswaarmakende vakvereniging verteenwoordigend is, word ingevolge subartikel (4) bepaal volgens die feite soos hulle bestaan het op die datum waarop die aansoek ingedien is, en wat die lidmaatskap betref, word alleen lede wat ingevolge artikel 1 (2) van die Wet op voormelde datum volwaardige lede was, in aanmerking geneem.
- (b) Die prosedure voorgeskryf by subartikel (2) moet gevolg word in verband met 'n beswaar wat ingedien word.

J. T. CROUSE,

Assistent-nywerheidsregistrator.

(5 Januarie 1990)

KENNISGEWING 5 VAN 1990

DEPARTEMENT VAN MANNEKRAG

WET OP ARBEIDSVERHOUDINGE, 1956

INTREKKING VAN REGISTRASIE VAN 'N WERKGEWERSORGANISASIE

Ek, David William James, Nywerheidsregistrator, maak hierby kragtens artikel 14(2) van die Wet op Arbeidsverhoudinge 1956, bekend dat ek die registrasie van die Suid-Afrikaanse Federasie van Druk- en Verwante Nywerhede met ingang van 31 Desember 1989 ingetrek het.

D. W. JAMES,

Nywerheidsregistrator.

(5 Januarie 1990)

Sweet and Chocolate Making: The making of sweets and chocolates, and any commodity or ingredient used in making sweets or chocolates;

Tea, Coffee and Chicory: The packaging or processing of tea, coffee or chicory, the roasting of coffee and chicory, and the manufacture of instant tea or coffee powder, essences or extracts;

Wine and Spirit Manufacturing: The manufacture of wines and spirits;

Tobacco: The processing and manufacture of tobacco and its derivative products;

Cold Storage, Distribution and Fresh Produce Markets: The preservation of food by cold storage, the distribution of food and the marketing of fresh produce.

Postal address of applicant.—P.O. Box 3629, North End, Port Elizabeth, 6056.

Office address of applicant.—Print House, Room 5, 365 Kempston Road, Korsten, Port Elizabeth.

Attention is drawn to the following requirements of section 4 of the Act:

- (a) The representativeness of any trade union which objects to the application shall in terms of subsection (4) be determined on the facts as they existed at the date on which the application was lodged and, as far as membership is concerned, only members who were in good standing in terms of section 1 (2) of the Act as at the aforesaid date shall be taken into consideration.
- (b) The procedure laid down in subsection (2) must be followed in connection with any objection lodged.

J. T. CROUSE,

Assistant Industrial Registrar.

(5 January 1990)

NOTICE 5 OF 1990

DEPARTMENT OF MANPOWER

LABOUR RELATIONS ACT, 1956

CANCELLATION OF REGISTRATION OF AN EMPLOYERS' ORGANISATION

I, David William James, Industrial Registrar, hereby notify, in terms of section 14(2) of the Labour Relations Act, 1956, that I have cancelled the registration of the South African Printing and Allied Industries Federation with effect from 31 December 1989.

D. W. JAMES,

Industrial Registrar.

(5 January 1990)

KENNISGEWING 8 VAN 1990—NOTICE 8 OF 1990

P.5.01A

VOORLOPIGE OPGAWE VAN HANDELSTATISTIEK VAN DIE REPUBLIEK VAN SUID-AFRIKA VRYGESTEL DEUR DIE
KOMMISSARIS VAN DOEANE EN AKSYNS
PRELIMINARY STATEMENT OF TRADE STATISTICS OF THE REPUBLIC OF SOUTH AFRICA RELEASED BY THE
COMMISSIONER FOR CUSTOMS AND EXCISE

Opmerking.—Die in- en uitvoersyfers wat in hierdie opgawe verskyn is grootliks aangepas om dit in ooreenstemming te bring met die vereistes wat gestel word vir die opstel van die betalingsbalans

L.W.—Die oorskakeling na die Geharmonieëde Tariefstelsel met ingang van 1 Januarie 1988 het die indeling van sekere kommoditeite verander. Wanneer die afdelingstotale vir 1988 en later jare dus met dié van vorige jare vergelyk word, moet die moontlike verskille as gevolg van die oorskakeling nie uit die oog verloor word nie.

Remark.—The import and export figures reflected in this statement have been adjusted largely to bring them into line with the requirements for the compilation of the balance of payments

N.B.—The change-over to the Harmonized Tariff System with effect from 1 January 1988, altered the classification of certain commodities. When comparing the section totals for 1988 and later years with those of previous years the possible differences due to the change-over should therefore be taken into consideration.

TYDPERK: JANUARIE–NOVEMBER 1989—PERIOD: JANUARY–NOVEMBER 1989

TABEL A: TOTALE IN MILJOENE RAND VOLGENS WÊRELDSTREKE EN SKEEPS- EN VliegTUGVOORRADE
TABLE A: TOTALS IN MILLIONS OF RAND ACCORDING TO WORLD ZONES AND SHIPS' AND AIRCRAFT STORES

Wêreldstreke—World zones	Invoere—Imports		Uitvoere—Exports	
	1989	1988	1989	1988
Afrika—Africa	757,2	646,3	3 082,4	2 186,0
Europa—Europe	19 734,5	17 092,5	18 507,4	13 350,6
Amerika—America	6 206,4	4 962,6	3 112,8	3 472,3
Asië—Asia	9 359,7	8 676,3	9 447,6	7 381,3
Oseanië—Oceania.....	471,5	329,4	283,2	177,1
Ander ongeklassifiseerde goedere en betalingsbalansaansuiwerings Other unclassified goods and balance of payments adjustments	5 021,7	4 557,2	18 699,2	18 349,8
Skeeps-/vliegtuigvoorraad—Ships'/Aircraft stores.....	—	—	210,6	122,6
Groototaal—Grand total	41 551,0	36 264,3	53 343,2	45 039,7

	Invoere—Imports		Uitvoere—Exports	
	1989	1988	1989	1988
TOTAAL IN MILJOENE RAND—TOTAL IN MILLIONS OF RAND	41,551,0	36 254,3	53 343,2	45 039,7

TABEL B: TOTALE IN MILJOEN RAND VOLGENS AFDELINGS VAN DIE GEHARMONIEËRDE STELSEL
TABLE B: TOTALS IN MILLION RAND ACCORDING TO SECTIONS OF THE HARMONIZED SYSTEM

Afdelings—Sections	Invoere—Imports		Uitvoere—Exports	
	1989	1988	1989	1988
I. Lewende diere; dierlike produkte Live animals; animal products.....	250,6	424,5	341,0	257,9
II. Plantaadige produkte Vegetable products	663,6	553,3	2 196,8	1 001,3
III. Dierlike of plantaadige vette en olies en splitsprodukte; voorbereide spysvette; dierlike en plantaadige wasse Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal and vegetable waxes.....	342,9	262,3	147,8	95,0
IV. Voorbereide voedsel; drank, spiritus en asyn; tabak en vervaardigde tabaksubstitue Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manu- factured tobacco substitutes	946,1	677,0	1 444,4	1 159,6
V. Minerale produkte Mineral products	445,1	401,3	6 072,5	4 586,8
VI. Produkte van die chemiese en verwante nywerhede Products of the chemical and allied industries	4 509,2	3 835,7	1 841,1	1 390,5
VII. Plastiek en artikels daarvan; rubber en artikels daarvan Plastics and articles thereof; rubber and articles thereof	1 833,7	1 745,4	315,2	252,8

Afdelings—Sections	Invoere—Imports		Uitvoere—Exports	
	1989	1988	1989	1988
VIII. Ongelooide huide en velle, leer, pelsvelle en artikels daarvan; saal- en tuiemakersware; reisartikels, handsakke en dergelike houers; artikels van diereiderm (uitgesonderd sywurmsnaar) Raw hides and skins, leather, furskins and articles thereof; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	244,8	199,4	363,3	308,2
IX. Hout en artikels van hout; houtskool; kurk en artikels van kurk; fabrikate van strooi, van esparto of van ander vlegwerkstowwe; mandjiewerk en vlegwerk Wood and articles of wood; wood charcoal; cork and articles of cork; manufactures of straw; of esparto or of other plaiting materials; basketware and wickerwork	306,3	254,5	220,0	179,2
X. Pulp van hout of van ander veselagtige sellulosiese stof; afval en oorskiet van papier of papierbord; papier en papierbord en artikels daarvan Pulp of wood or of other cellulosic material; waste and scrap of paper or paperboard; paper and paperboard of paper or paperboard; paper and paperboard and articles thereof	1 037,3	932,2	1 160,0	1 151,9
XI. Tekstiele en tekstielartikels Textiles and textile articles	1 819,2	1 516,9	1 345,1	1 258,0
XII. Skoeisel, hoofdeksels, sambrele, sonsambrele, wandelstokke, sitstokke, swepe, karwatse en onderdele daarvan; bereide vere en artikels daarvan gemaak; kunsblomme; artikels van mensehaar Footwear, headgear, umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof; prepared feathers and articles made therewith; artificial flowers; articles of human hair	162,4	161,1	21,4	19,3
XIII. Artikels van klip, gips, sement, asbes, mika of dergelike stowwe; keramiese produkte; glas en glasware Articles of stone, plaster, cement, asbestos, mica or similar materials; ceramic products; glass and glassware	486,4	388,8	180,4	137,0
XIV. Natuurlike of gekweekte përels, edel-, of halfedelstene, edelmetale, metale met edelmetale bedek, en artikels daarvan; nagemaakte juweliersware, muntstukke Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	478,3	368,3	4 970,7	3 623,4
XV. Onedelmetale en artikels van onedelmetaal Base metals and articles of base metal	2 266,5	1 744,1	8 352,8	6 179,3
XVI. Masjinerie en meganiese toestelle; elektriese toerusting; onderdele daarvan; klankopnemers en -weergewers; televisiebeeld- en klankopnemers en -weergewers, en onderdele en bybehoorsels van sodanige artikels Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	12 455,1	11 375,6	926,1	803,7
XVII. Voertuie, lugvaartuie, vaartuie en verwante vervoertoerusting Vehicles, aircraft, vessels and certain associated transport equipment	6 385,3	5 152,8	593,4	413,5
XVIII. Optiese, fotografiese, kinematografiese, meet-, kontroleer-, presisie-, mediese of chirurgiese instrumente en apparaat; uurwerke en horlosies; musiekinstrumente; onderdele en bybehoorsels daarvan Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; clocks and watches; musical instruments, parts and accessories thereof	1 584,3	1 447,9	94,9	79,8
XX. Diverse vervaardigde artikels Miscellaneous manufactured articles	407,3	405,7	124,9	106,7
XXI. Kunswerke, versamelaarsstukke en antieke Works of art, collectors' pieces, and antiques	40,3	27,2	21,5	14,8
Ander ongeklassifiseerde goedere en betalingsbalansaansuiwerings Other unclassified goods and balance of payments adjustments	4 886,3	4 390,3	22 609,9	22 021,0
Groot totaal—Grand total	41 551,0	36 264,3	53 343,2	45 039,7

KENNISGEWING 9 VAN 1990
ADMINISTRASIE: VOLKSRAAD
DEPARTEMENT VAN LANDBOU-
ONTWIKKELING

KENNISGEWING VAN VERGADERING VAN SKULDEISERS KRAGTENS ARTIKEL 22(1) VAN DIE WET OP LANDBOUKREDIET, 1966

Hierby word 'n vergadering van ondergenoemde applikant en sy skuldeisers op die plek en datum hieronder genoem, belê, met die doel om skuldeisers in staat te stel om hul vorderings teen die applikant te bewys en 'n skikkingsvoorstel van die landboukredietraad te oorweeg.

J. H. RADEMEYER,

Direkteur: Direktoraat Finansiële Bystand,
 Departement van Landbou-ontwikkeling.

NOTICE 9 OF 1990

ADMINISTRATION: HOUSE OF ASSEMBLY
DEPARTMENT OF AGRICULTURAL
DEVELOPMENT

NOTICE OF MEETING OF CREDITORS IN TERMS OF SECTION 22(1) OF THE AGRICULTURAL CREDIT ACT, 1966

Meeting of the undermentioned applicant and his creditors is hereby convened at the place and date mentioned hereunder for the purpose of enabling creditors to prove their claims against the applicant and of considering a proposal for compromise by the Agricultural Credit Board.

J. H. RADEMEYER,

Director: Directorate Financial Assistance,
 Department of Agricultural Development.

Aansoek van Application by	Plek van byeenkoms Place of meeting	Datum en tyd Date and time
Jacob Willem van Lonkhuyzen van die plaas/of the farm Hands Up, Posbus/P.O. Box 603, Barberton, 1300.	Kantoor van die Landdros/Magistrate's Office, Barberton	9 Februarie/February 1990 om/at 09:00

(5 Januarie 1990)/(5 January 1990)

DIE BLOMPLANTE VAN
AFRIKA

Hierdie publikasie word uitgegee as 'n geïllustreerde reeks, baie na die aard van Curtis se "Botanical Magazine". Die doel van die werk is om die skoonheid en variasie van vorm van die flora van Afrika aan die leser bekend te stel, om belangstelling in die studie en kweek van die inheemse plante op te wek, en om plantkunde in die algemeen te bevorder.

Die meeste van die illustrasies word deur kunstenaars van die Navorsingsinstituut vir Plantkunde gemaak, dog die Redakteur verwelkom geskikte bydraes van 'n wetenskaplike en kunsstandaard afkomstig van verwante inrigtings.

Onder huidige omstandighede word twee dele van die werk in een omslag gepubliseer, maar met onreëlmatige tussenpose; elke deel bevat 10 kleurplate. Intekengeld bedra R15 per uitgawe van twee dele (buitelands R16 per uitgawe): Vier dele per band. Vanaf band 27 is die prys per band in rexine gebind R40; in luukse rexine gebind R45. (Buitelands, rexine gebind R45; luukse band R50).

Verkrygbaar van die Direkteur, Afdeling Landbouinligting, Privaatsak X144, Pretoria.

Verkoopbelasting moet by binnelandse bestellings ingesluit word.

THE FLOWERING PLANTS OF
AFRICA

This publication is issued as an illustrated serial, much on the same lines as Curtis's Botanical Magazine, and for imitating which no apology need be tendered.

The desire and object of the promoters of the publication will be achieved if it stimulates further interest in the study and cultivation of our indigenous plants.

The illustrations are prepared mainly by the artists at the Botanical Research Institute, but the Editor welcomes contributions of suitable artistic and scientific merit from kindred institutions.

Each part contains 10 plates. Two parts are published in one cover and costs R15 per issue of two parts (other countries R16 per issue). Two, three or four parts may be published annually, depending on the availability of illustrations. A volume consists of four parts. From Volume 27, the price per volume is: Rexine binding, R40; de luxe binding R45 (other countries, rexine binding R45; de luxe binding R50).

Obtainable from the Director, Division of Agricultural Information, Private Bag X144, Pretoria.

Sales tax must accompany inland orders.

Werk mooi daarmee

Ons leef  daarvan

water is kosbaar

Use it

Don't abuse  it

water is for everybody

DIE STAATSDRUKKER

AMPTELIKE PUBLIKASIES ONTVANG
GEDURENDE SEPTEMBER 1989(Alle binnelandse pryse onderhewig aan 13 % algemene
verkoopbelasting)

RP-VERSLAE

RP 59/1989—Verslag van die Ouditeur-generaal oor die Rekenings van die Departement van Pos- en Telekommunikasiewese vir die boekjaar 1987–88. ISBN 0-621-12486-9. Plaaslik **R4,45**; buitelands **R5,55**.**RP 68/1989**—Verslag van die Ouditeur-generaal oor die Appropriasie- en Diverse Rekenings van die Administrasie: Raad van Afgevaardigdes vir 1987–88. ISBN 0-621-12522-9. Plaaslik **R10,45**; buitelands **R13,05**.**RP 69/1989**—Verslag van die Ouditeur-generaal oor die Rekenings van die Provinsiale Administrasie, Oranje-Vrystaat, vir 1987–88. ISBN 0-621-12527-X. Plaaslik **R10,60**; buitelands **R13,25**.**RP 70/1989**—Verslag van die Ouditeur-generaal oor die Appropriasie- en Diverse Rekenings ten opsigte van die Administrasie: Raad van Verteenwoordigers vir 1987–88. ISBN 0-621-12530-X. Plaaslik **R13,00**; buitelands **R16,25**.**RP 71/1989**—Jaarverslag van die Raad vir Desentralisasie van Nywerhede: 1 April 1988 tot 31 Maart 1989. ISBN 0-621-12532-6. Plaaslik **R13,80**; buitelands **R17,25**.**RP 73/1989**—Verslag van die Ouditeur-generaal oor die Rekenings van die Katoenraad vir die boekjaar 1 Maart 1987 tot 29 Februarie 1988. ISBN 0-621-12603-9. Plaaslik **R1,10**; buitelands **R1,40**.

GEOLOGIESE OPNAME

Bulletin 91—“The Sedimentology and Stratigraphy of Cainozoic Sediments in the Area Northwest of Thabazimbi by G. A. Botha”. ISBN 0-621-12019-7. Plaaslik **R20,00**; buitelands **R25,00**.**Bulletin 92**—Die Geologie van die Krokodilrivierfragment, Transvaal, deur F. J. Hartzer, M.Sc. ISBN 0-621-12163-0. Plaaslik **R40,00**; buitelands **R50,00**.**Bulletin 93**—“Sugilite and Associated Metamorphic Silicate Minerals from Wessels Mine Kalahari Manganese Field by R. D. Dixon, M.Sc”. ISBN 0-621-12163-0. Plaaslik **R20,00**; buitelands **R25,00**.**S.A.K.S**—Chronostratigrafiese Reeks No. 1—“A Revised Precambrian Time Scale for South Africa, 1989”. ISBN 0-621-12465-6. Plaaslik **R20,00**; buitelands **R25,00**.**Geologiese Opname**—Die Geologie van die Gebied Sakrivier, Blad 3020, deur L. B. Siebrits, M.Sc. Plaaslik **R5,00**; buitelands **R6,25**.

DIVERSE PUBLIKASIES

Kwartaallike Bulletin van Statistieke: Junie 1989, Volume 23, No. 2. Plaaslik **R5,00**; buitelands **R6,25**.**Patentjoernaal** (insluitende Handelsmerke, Modelle, en Outeursreg in Rolprente). Vol. 22, August 1989, No. 8. ISSN 0031-286X. Plaaslik **R1,00**; buitelands **R1,25**.

KAARTE

(Gedruk vanaf 25 Augustus tot 24 September 1989)

1:50 000 Nuwe uitgawes	Uitgawe	Datum van inligting
2729CA—Rietkuil.....	Tweede	1987
2729CB—Langhoek.....	Tweede	1987
2729CA—Hopedale.....	Tweede	1987
2729CD—Verkykerskop.....	Tweede	1987
2729DC—Mont Pelaa.....	Tweede	1987
2730AA—Latemanek.....	Tweede	1987
2730AB—Dirkiesdorp.....	Tweede	1987

THE GOVERNMENT PRINTER

OFFICIAL PUBLICATIONS RECEIVED
DURING SEPTEMBER 1989

(All local prices are liable to 13 % general sales tax)

RP REPORTS

RP 59/1989—Report of the Auditor-General on the Accounts of the Department of Posts and Telecommunications for the financial year 1987–88. ISBN 0-621-12486-9. Local **R4,45**; other countries **R5,55**.**RP 68/1989**—Report of the Auditor-General on the Appropriation and Miscellaneous Accounts of the Administration: House of Delegates for 1987–88. ISBN 0-621-12522-9. Local **R10,45**; other countries **R13,05**.**RP 69/1989**—Report of the Auditor-General on the Accounts of the Provincial Administration, Orange Free State, for 1987–88. ISBN 0-621-12527-X. Local **R10,60**; other countries **R13,25**.**RP 70/1989**—Report of the Auditor-General on the Appropriation and Miscellaneous Accounts in respect of the Administration: House of Representatives for 1987–88. ISBN 0-621-12530-X. Local **R13,00**; other countries **R16,25**.**RP 71/1989**—Annual Report of the Decentralisation Board: 1 April 1988 to 31 March 1989. ISBN 0-621-12532-6. Local **R13,80**; other countries **R17,25**.**RP 73/1989**—Report of the Auditor-General on the Accounts of the Cotton Board for the Financial Year 1 March 1987 to 29 February 1988. ISBN 0-621-12603-9. Local **R1,10**; other countries **R1,40**.

GEOLOGICAL SURVEY

Bulletin 91—The Sedimentology and Stratigraphy of Cainozoic Sediments in the Area Northwest of Thabazimbi by G. A. Botha. ISBN 0-621-12019-7. Local **R20,00**; other countries **R25,00**.**Bulletin 92**—“Die Geologie van die Krokodilrivierfragment, Transvaal, deur F. J. Hartzer, M.Sc”. ISBN 0-621-12163-0. Local **R40,00**; other countries **R50,00**.**Bulletin 93**—Sugilite and Associated Metamorphic Silicate Minerals from Wessels Mine Kalahari Manganese Field by R. D. Dixon M.Sc. ISBN 0-621-12163-0. Local **R20,00**; other countries **R25,00**.**S.A.C.S.**—Chronostratigraphic Series No. 1—A Revised Precambrian Time Scale for South Africa, 1989. ISBN 0-621-12465-6. Local **R20,00**; other countries **R25,00**.**Geological Survey**—The Geology of the Sakrivier Area, Sheet 3020, by L. B. Siebrits, M.Sc. ISBN 0-621-12518-0. Local **R5,00**; other countries **R6,25**.

MISCELLANEOUS PUBLICATIONS

Quarterly Bulletin of Statistics: June 1989, Volume 23, No. 2. Local **R5,00**; other countries **R6,25**.**Patent Journal** (including Trade Marks and Copyright in Cinematograph Films). Vol. 22, August 1989, No. 8. ISSN 0031-286X. Local **R1,00**; other countries **R1,25**.

MAPS

(Printed during 25 August to 24 September 1989)

1:50 000 New editions	Edition	Date of information
2729CA—Rietkuil.....	Second	1987
2729CB—Langhoek.....	Second	1987
2729CA—Hopedale.....	Second	1987
2729CD—Verkykerskop.....	Second	1987
2729DC—Mont Pelaa.....	Second	1987
2730AA—Latemanek.....	Second	1987
2730AB—Dirkiesdorp.....	Second	1987

1:50 000 Nuwe uitgawes	Uitgawe	Datum van inligting
2730AC—Wakkerstroom.....	Tweede	1987
3120BC—Blouysfer	Tweede	1987
3120CA—Kagat.....	Tweede	1987
3120CD—Rooipoort	Tweede	1987
3120DD—Gideonsfontein.....	Tweede	1987

1:50 000 RSA-herdrukke		
2528CA—Pretoria.....	Vyfde	1979
2528CB—Silverton.....	Vierde	1975
2528CD—Rietvleldam	Vierde	1975
2625AA—West End.....	Eerste	1972
2625AB—Mareetsane	Eerste	1972
2626DC—Klerksdorp.....	Derde	1982
2627BB—Roodepoort	Vierde	1983
2627CA—Potchefstroom	Vierde	1977
2628AB—Benoni.....	Vierde	1983
2628AD—Springs	Vierde	1976
2732AC—Jozini.....	Tweede	1980
2830CC—Weenen	Eerste	1972
2832AC—Mtubatuba	Derde	1982
2832CC—Richards Bay.....	Derde	1983
2929AC—Howick	Eerste	1973
2929DC—Hammersdale.....	Tweede	1978
2931AA—Mapumdo.....	Tweede	1976
2931AB—Tugela.....	Tweede	1976

1:500 000 Topo- en admin.-herdrukke		
2722—Kimberley: Landdrosdistrikte, Mei 1989.....	Eerste	1982
2916—Springbok: Landdrosdistrikte, Mei 1989.....	Tweede	1980
3117—Calvinia: Landdrosdistrikte, Junie 1989.....	Eerste	1980
3122—Beaufort West: Landdrosdistrikte, Mei 1989.....	Eerste	1981

1:1 000 000 Herdruk		
3179—Ondangwa: Luginligting, April 1989.....	Tweede	1977

DIE STAATSDRUKKER

AMPTELIKE PUBLIKASIES ONTVANG
GEDURENDE OKTOBER 1989

(Alle binnelandse pryse onderhewig aan 13 % algemene verkoopbelasting)

RP-VERSLAE

RP 77/1989—Verslag van die Ouditeur-generaal oor die Rekenings van die Sentraal Witwatersrand Streekdiensteraad vir die tydperk 1 April 1987 tot 30 Junie 1988. ISBN 0-621-12637-3. Plaaslik R1,15; buitelandse R1,20.

GEOLOGIESE OPNAME-VERSLAE

Jaarverslag van die Hoofdirekteur van die Geologiese Opname, 1987: Herdruk uit die Jaarverslag vir 1987 van die Departement van Mineraal- en Energiesake. ISBN 0-621-12476-1. Plaaslik R20,00; buitelandse R25,00.

Memorie 75—“Palynostratigraphic Correlation between the Lower Karoo Sequence of the Waterberg and Pafuri Coal-bearing Basins and the Hammanskraal Plant Macrofossil Locality, Republic of South Africa, by C. S. Macrae”. ISBN 0-621-11995-4. Plaaslik R50,00; buitelandse R62,50.

Geologiese Opname—Die Geologie van die Gebied Frankfort, Blad 2728. ISBN 0-621-12412-5. Plaaslik R5,00; buitelandse R6,25.

1:50 000 New editions	Edition	Date of information
2730AC—Wakkerstroom.....	Second	1987
3120BC—Blouysfer	Second	1987
3120CA—Kagat.....	Second	1987
3120CD—Rooipoort	Second	1987
3120DD—Gideonsfontein.....	Second	1987

1:50 000 RSA reprints		
2528CA—Pretoria.....	Fifth	1979
2528CB—Silverton.....	Fourth	1975
2528CD—Rietvleldam	Fourth	1975
2625AA—West End.....	First	1972
2625AB—Mareetsane	First	1972
2626DC—Klerksdorp.....	Third	1982
2627BB—Roodepoort	Fourth	1983
2627CA—Potchefstroom	Fourth	1977
2628AB—Benoni.....	Fourth	1983
2628AD—Springs	Fourth	1976
2732AC—Jozini.....	Second	1980
2830CC—Weenen	First	1972
2832AC—Mtubatuba	Third	1982
2832CC—Richards Bay.....	Third	1983
2929AC—Howick	First	1973
2929DC—Hammersdale.....	Second	1978
2931AA—Mapumdo.....	Second	1976
2931AB—Tugela.....	Second	1976

1:500 000 Topo and admin. reprints		
2722—Kimberley: Magisterial District, May 1989.....	First	1982
2916—Springbok: Magisterial District, May 1989.....	Second	1980
3117—Calvinia: Magisterial District, June 1989.....	First	1980
3122—Beaufort West: Magisterial District, May 1989.....	First	1981

1:1 000 000 Reprint		
3179—Ondangwa: Air Information, April 1989.....	Second	1977

THE GOVERNMENT PRINTER

OFFICIAL PUBLICATIONS RECEIVED
DURING OCTOBER 1989

(All local prices are liable to 13 % general sales tax)

RP REPORTS

RP 77/1989—Report of the Auditor-General on the Accounts of the Central Witwatersrand Regional Services Council for the period 1 April 1987 to 30 June 1988. ISBN 0-621-12637-3. Local R1,15; other countries R1,20.

GEOLOGICAL SURVEY REPORTS

Annual Report of the Chief Director of the Geological Survey, 1987: Reprinted from the Annual Report for 1987 of the Department of Mineral and Energy Affairs. ISBN 0-621-12476-1. Local R20,00; other countries R25,00.

Memoir 75—“Palynostratigraphic Correlation between the Lower Karoo Sequence of the Waterberg and Pafuri Coal-bearing Basins and the Hammanskraal Plant Macrofossil Locality, Republic of South Africa, by C. S. Macrae”. ISBN 0-621-11995-4. Local R50,00; other countries R62,50.

Geological Survey—The Geology of the Frankfort Area, Sheet 2728. ISBN 0-621-12412-5. Local R5,00; other countries R6,25.

STATISTIESE VERSLAE

Verslag No. 02-01-01 (1988)—Mannekragopname, 1988: Beroepsgegewens. ISBN 0-621-12640-3. Plaaslik R4,00; buitelandse R5,00.

Verslag No. 03-51-01 (1988)—Toerisme en Migrasie, 1988. ISBN 0-621-12635-7. Plaaslik R4,00; buitelandse R5,00.

Verslag No. 11-01-01 (1987)—Landbou-opname, 1987. ISBN 0-621-12482-6. Plaaslik R4,00; buitelandse R5,00.

Verslag No. 71-51-01 (1988)—Nuwe Voertuie Geregistreer, 1987-88. ISBN 0-621-12434-6. Plaaslik R6,00; buitelandse R7,50.

Verslag No. 83-12-01 (1987)—Sensus van Besigheidsdienste, 1987: Regsdienste. ISBN 0-621-12473-7. Plaaslik R4,00; buitelandse R5,00.

Verslag No. 83-13-01 (1987)—Sensus van Besigheidsdienste, 1987: Reklamepraktisyne en Verwante Dienste asook Bemerkingsnavorsingsdienste, 1987. ISBN 0-621-12410-9. Plaaslik R4,00; buitelandse R5,00.

DIVERSE PUBLIKASIES

Patentjoernaal (insluitende Handelsmerke Modelle en Outeursreg in Rolprente). Vol. 22, September 1989, No. 9. ISSN 0031-286X. Plaaslik R1,00; buitelandse R1,25.

Gebinde dele van die *Staatskoerant* vir Maart (Deel A en B), April (Deel A en B) en Mei (Deel A en B), 1989. Plaaslik R30,00; buitelandse R37,50.

KAARTE

(Gedruk vanaf 25 September tot 24 Oktober 1989)

1:50 000 Nuwe kaarte	Uitgawe	Datum van inligting
3120DB—Slangeberge.....	Tweede	1987
3320AD—Konstabel.....	Tweede	1987
3320BA—Matjiesfontein.....	Tweede	1987

1:50 000 Herdrukke

2427DD—Mabula.....	Tweede	1981
2528AD—Hammanskraal.....	Vierde	1984
3226DC—Fort Beaufort.....	Tweede	1979
3227CC—Debe Nek.....	Tweede	1979
3227CD—King William's Town.....	Derde	1985
3318AD—Darling.....	Derde	1981
3324DD—Hankey.....	Tweede	1974
3326AB—Piggot's Bridge.....	Tweede	1977
3326BA—Fort Brown.....	Tweede	1977
3327AD—Hamburg.....	Tweede	1981
3420AA—Stormvlei.....	Tweede	1981
3420BC—Malgas.....	Tweede	1981
3420BD—Kaaip Infante.....	Derde	1981
3424BB—Humansdorp.....	Tweede	1975

1:250 000 Nuwe kaart

2828—Harrismith.....	Derde	1987
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1:500 000 Herdruk

1918—Grootfontein: Luginligting, Julie 1989.....	Eerste	1985
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1:1 000 000

3275—Bulawayo: Luginligting, Julie 1989.....	Derde	1979
3398—Durban: Luginligting Julie 1989.....	Vierde	1983
3300—Johannesburg: Luginligting, September 1989.....	Derde	1980

STATISTICAL REPORTS

Report No. 02-01-01 (1988)—Manpower Survey, 1988: Occupational Information. ISBN 0-621-12640-3. Local R4,00; other countries R5,00.

Report No. 03-51-01 (1988)—Tourism and Migration, 1988. ISBN 0-621-12635-7. Local R4,00; other countries R5,00.

Report No. 11-01-01 (1987)—Agricultural Survey, 1987. ISBN 0-621-12482-6. Local R4,00; other countries R5,00.

Report No. 71-51-01 (1988)—New Vehicles Registered, 1987-88. ISBN 0-621-12434-6. Local R6,00; other countries R7,50.

Report No. 83-12-01 (1987)—Census of Business Services, 1987: Legal Services. ISBN 0-621-12473-7. Local R4,00; other countries R5,00.

Report No. 83-13-01 (1987)—Census of Business Services, 1987: Advertising Practitioners and Allied Services and Marketing Research Services, 1987. ISBN 0-621-12410-9. Local R4,00; other countries R5,00.

MISCELLANEOUS PUBLICATIONS

Patent Journal (including Trade Marks, Designs and Copyright in Cinematograph Films). Vol 22, September 1989, No. 9. ISSN 0031-286X. Local R1,00; other countries R1,25.

Bound volumes of the *Government Gazette* for March (Part A and B), April (Part A and B) and May (Part A and B), 1989. Local R30,00; other countries R37,50.

MAPS

(Printed during 25 September to 24 October 1989)

1:50 000 New maps	Edition	Date of Information
3120DB—Slangeberge.....	Second	1987
3320AD—Konstabel.....	Second	1987
3320BA—Matjiesfontein.....	Second	1987

1:50 000 Reprints

2427DD—Mabula.....	Second	1981
2528AD—Hammanskraal.....	Fourth	1984
3226DC—Fort Beaufort.....	Second	1979
3227CC—Debe Nek.....	Second	1979
3227CD—King William's Town.....	Third	1985
3318AD—Darling.....	Third	1981
3324DD—Hankey.....	Second	1974
3326AB—Piggot's Bridge.....	Second	1977
3326BA—Fort Brown.....	Second	1977
3327AD—Hamburg.....	Second	1981
3420AA—Stormvlei.....	Second	1981
3420BC—Malgas.....	Second	1981
3420BD—Kaaip Infante.....	Third	1981
3424BB—Humansdorp.....	Second	1975

1:250 000 New map

2828—Harrismith.....	Third	1987
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