DURASHIELD®

Advantages & Compliances

CHEMICAL STABILITY

DURASHIELD panels have a wider range of chemical resistance than any other siding or roofing panel, covering essentially all conditions encountered in chemical and allied process plants. DURASHIELD panels are made of solid Polyvinyl Chloride, assuring long term maintenance free performance in high-corrosion areas. The structural and chemical integrity of the panels are thus maintained and simple washing generally restores all exposed panel surface to their original appearance and condition.

NOTE: DURASHIELD panels are not recommended for use with Acetone Ethers, Esters, Aromatic and Chlorinated Hydrocarbons.

HEAT REDUCTION

Heat reduction into the building can be reduced by 50% in comparison with a roof covered with galvanised and painted metal sheets. The extent of diminution results from low heat absorbency level of DURASHIELD sheets and thermal resistance of the product in comparison with metal sheets. (The R value of DURASHIELD is 18).

FIRE RATING

DURASHIELD meets and conforms to Factory Mutual Research Corporation (FMRC). Approval requirements for use as class 1 wall and ceiling panels. Fire test results (FMRC Standard 4870) show that DURASHIELD panels meet FMRC Approval requirements for class 1 plastic wall and ceiling panels (on walls no greater than 9.10m in height). The panels in and of themselves do not require automatic sprinkler protection when installed on walls and ceiling. They would be acceptable in a combustible occupancy when protected by automatic sprinklers as defined by FMRC loss prevention standards.

DURABILITY

DURASHIELD panels offer exceptional durability when exposed to various types of physical abuse, because they have extremely high impact strength (over 10ft-lbs/in Izod) which means that the panels are highly breakage resistant, will not dent due to impact, over the entire temperature range of which these panels are expected to be exposed in industrial buildings.

DURASHIELD®

OTHER FEATURES

The ultimate in resistance against the effects of UV light, even in areas of most intense sunlight.
High impact strength over the widest temperature range from sub-freezing to 65 degrees Celsius.
Long term retention of all physical properties - assuring perfect long term performance.

TYPICAL APPLICATIONS

Commercial

Chemical Plants
Oil Rigs
Refineries
Mines
Coastal Construction
Food Processing Plants
Agriculture - Pig sheds etc

Domestic

Pergolas/ Verandahs/ Carports etc where heat transference is a problem.

COMPLIANCES

- DURASHIELD complies with the Retention of Profile, and Impact Resistance Test as layed down in AS2376 - 1980

- DURASHIELD has passed the Sand Bag Impact Test - AS2424

  DURASHIELD is a Class A - "Non Combustible Material of Construction" and conforms to AS1530-3 Early Fire Hazard Test

- DURASHIELD has passed Factory Mutual Research Corporation's Fire Test for use to Unlimited Heights without Sprinkler Protection

- DURASHIELD Industrial Wave has passed the Cyclonic Test in accordance with AS2424

NOTE: Additional technical information is available on request.

DURASHIELD®

PRODUCT DESCRIPTION

Durashield PVC has been manufactured for over 30 years and in that time has been modified to include significant development such as: Heat resistance resins, UV Absorbers, Highly chemical resistance pigments, impact modifiers and unique Single Stage Extrusion.

PRODUCT APPLICATION

Heavy Industry
Environments where chemicals, corrosion and fire resistance are required such as:

Pulp and Paper Mills	Refineries	Oil Rigs
Power Stations	Fertiliser Works	Cooling Towers
Chemical Plants	Coastal Construction	Asbestos Replacement
Mines		

Factories/Warehouses:
Its high impact strength will minimise damage by truck, fork-lifts and similar equipment and its insulation capabilities will minimise heat loss in winter and provide a cooler environment in summer.

Agriculture:
Provides flexibility in designing curved roofing and siding for such buildings as cow sheds, chicken houses machinery sheds, etc.

Food Processing:
Provides a hygienic environment and meets the EEC directive 85/572 as a material suitable for contact with all categories of foodstuffs. Chemical resistance is also provided where acidic vapours are present in the environment.

Coastal Construction:
Durashield is ideal for high corrosion areas.

PRODUCT SPECIFICATION

Standard Sheet Colours:	White, Light Grey and Beige.
Standard Sheet Length:	6000mm (For projects of 1000m^2 or more, sheets can be produced to any specific length up to 7 metres).

DURASHIELD®

INSTALLATION INFORMATION

CUTTING : Sheets shall be cut using a circular saw with masonry blade or find tooth metal blade at low speeds. In addition, shears or a sharp knife may be used depending on sheet thickness.

DRILLING : Screw holes shall be pre-drilled with a 10mm metal drill bit at low speeds to compensate for expansion (12mm for sheets longer than 6 metres). Shavings should be cleared off prior to fixing.

OVERLAPPING : Side laps shall be:

Greca:	1½ corrugation (116mm)
Industrial Rib	1 corrugation (54mm)
Industrial Wave	1 corrugation (107mm)

If overlapping is required in the sheet length we recommend a minimum of 200mm for roofs and 100mm for walls. It is recommended to use compression foam along the fastener line for roof slopes of less than ten degrees.

SKYLIGHTS : Suntuf polycarbonate sheets are manufactured in each profile to enable light transmitting panels to be easily incorporated for either roof or wall applications.

FASTENING ROOF :

Greca: use 50mm fixings through the crest. Fix top and bottom of the sheet every second corrugation and in the centre, every third corrugation.

Industrial Rib: for wood use 75mm fixing through every crest.
for metal use 65mm fixings through every crest.

Industrial Wave: use 65mm fixings through the crest. Fix top and bottom of the sheet every second corrugation and in the centre, every third corrugation.
Use 32mm Weatherlock washers with Industrial Wave profile.

For sheets with a thickness of 2.0mm or less side laps should be stitched every 500mm with an expandable nut (these are easily installed from top side, or outer side by drilling 10mm hole insert nut and tighten).

Use end laps as expansion joints. Therefore no expandable nut should be used to connect two sheets overlapping at ends.

INSTALLATION INFORMATION (CONT)

FASTENING ROOF (cont) : The Adjustable Profiled Ridge Cap is to be fixed to top Purlin line. However, 10mm expansion holes must be drilled through both ridge and underlying sheet.

FIXINGS: For highly corrosive areas use specialised screws and washers. Care shall be taken not to over tighten the screws.

ROOF SLOPE: A minimum pitch of five (5) degrees is recommended (87mm/1000mm).

For Roof	Min. Cold Curving Radius	Max. Overhang	Max. End Spans	Max. Mid Spans
Greca 1.3	4000mm	150mm	800mm	1000mm
Industrial Rib 2.0	8000mm	200mm	900mm	1500mm
Industrial Wave 2.0	10000mm	150mm	900mm	1200mm
Industrial Wave 2.5	10000mm	150mm	900mm	1500mm

HOT CLIMATES : We recommend white Industrial Wave (2.5mm) for roofs. To avoid slight visual distortion at the hottest time of the day, we suggest reducing mid spans.

FASTENING WALL :

Greca: Use 50mm fixings through the crest. Fix top and bottom of sheet every second corrugation and in the centre, every third corrugation.

Industrial Rib: Use 75mm fixings through every crest, for wood.
Use 65mm fixings through every crest, for metal.

Industrial Wave: Use 65mm fixings through the crest. Fix every second corrugation at top and bottom purlin and every third corrugation in centre.
Use 32mm Weatherlock washers with Industrial Wave profile.

INSTALLATION INFORMATION (CONT)

FASTENING WALL : (cont)

SPECIAL NOTE: Fix each sheet at centre purlin line without pre-drilling holes. Then pre-drill with 10mm clearance (12mm for sheets longer than six metres) at purlin lines from the centre. This will hold the sheet in position and allow it to expand in each direction away from the centre line.

For sheets with a thickness of 2mm or less side laps should be stitched every 500mm with an expandable nut (these are easily installed from top side, or outer side by drilling 10mm hole, insert nut and tighten).

Use end laps as expansion joints. Therefore, no expandable nut should be used to connect two sheets overlapping at ends.
Flashings to be fixed to Purlins and Girts.
However, 10mm expansion holes must be pre-drilled through both flashing and underlying sheet. To assist in keeping the flashing straight, expandable nuts should be used every 300mm.

FIXINGS: For highly corrosive areas, use specialised screws and washers. Care shall be taken not to over tighten the screws.

For Wall	Min. Cold Curving Radius	Max. Overhang	Max. End Spans	Max. Mid Spans
Greca 1.3	4000mm	150mm	900mm	1100mm
Industrial Rib 2.0	8000mm	200mm	1000mm	1650mm
Industrial Wave 2.0	10000mm	150mm	1000mm	1350mm
Industrial Wave 2.5/3.0	10000mm	150mm	1000mm	1650mm

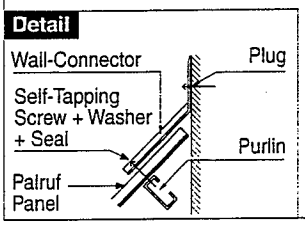
DURASHIELD®

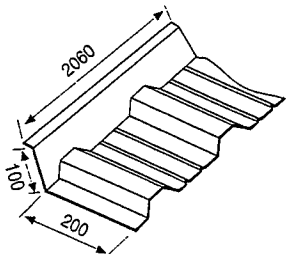
FINISHING ACCESSORIES :

Wall connector

Angle: Various
Material: P.V.C. 2-3mm

Detail

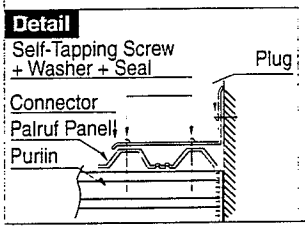


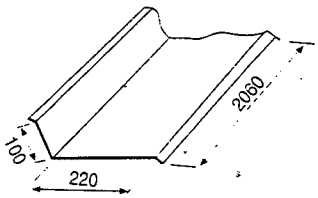


Side connector

Angle: 90°
Material: P.V.C. 2mm

Detail

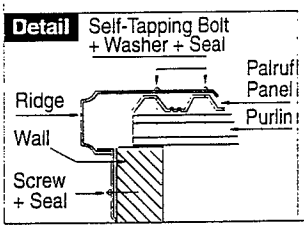


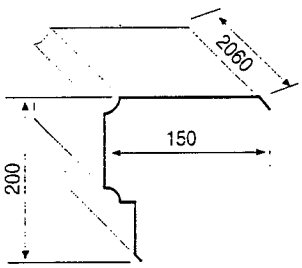


Side ridge

Material: P.V.C. 2mm

Detail

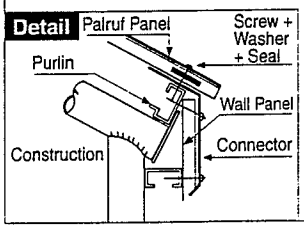


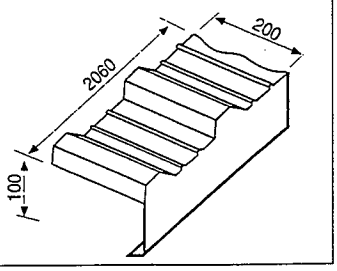


Gutter connector

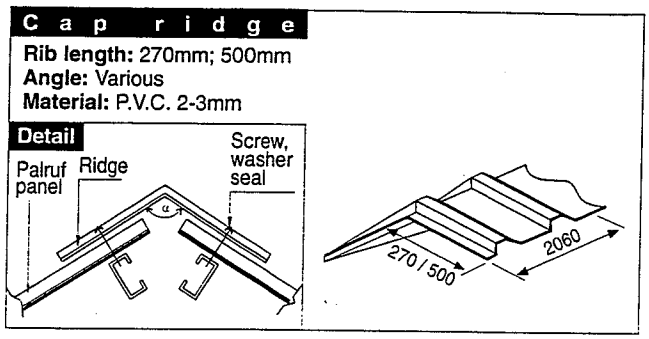
Angle: Various
Material: P.V.C. 2-3mm

Detail

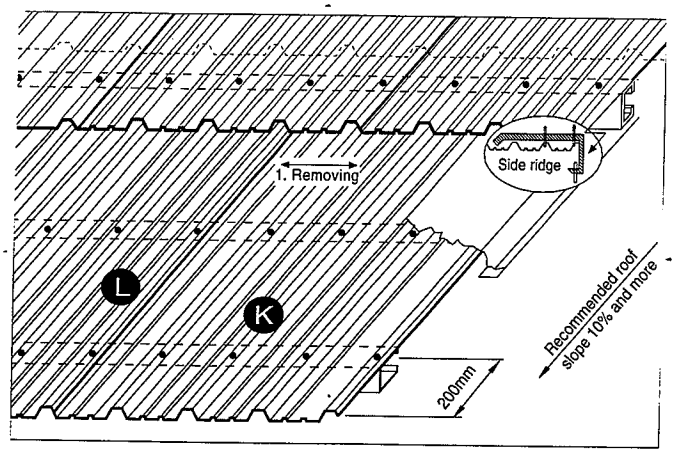




FINISHING ACCESSORIES (CONT) :



WHEN END LAPPING: -OFFSET SHEETS AS SHOWN



1. Sliding of the second row of panels is recommended. Screws always on corrugation top

DURASHIELD®

EARLY FIRE HAZARD TEST AS 1530-3 1989

(AMDT NO. 1 Apr 92)

TESTING AUTHORITY:	AWTA TEXTILE TESTING
TEST NUMBER:	7-444736 CV
DATE:	10 March 1993
SAMPLE DESCRIPTION:	Durashield - white corrugated sheeting

MATERIAL SPECIFICATION:	Nom Composition:	PVC
	Nom thickness:	3mm

RESULTS:	**MEAN**	**STANDARD ERROR**
IGNITION TIME	11.70 min	0.52
FLAME PROPAGATION TIME	N/A s	N/A
HEAT RELEASE INTEGRAL	26.5 kJ/m^2	5.1
SMOKE RELEASE	-0.3194	0.0952
OPTICAL DENSITY, D	0.5813/m	

NUMBER OF SPECIMENS IGNITED:	9
NUMBER OF SPECIMENS TESTED:	9

REGULATORY INDICES:

IGNITABILITY INDEX	8	RANGE 0-20
SPREAD OF FLAME INDEX	0	RANGE 0-10
HEAT EVOLVED INDEX	1	RANGE 0-10
SMOKE DEVELOPED INDEX	7	RANGE 0-10

DURASHIELD®

FIRE TESTING

TESTING AUTHORITY : Factory Mutual Research
DATE : 3rd August 1992

INTRODUCTION

H & F Manufacturing Corporation submitted their Durashield panels for testing to determine if they meet Factory Mutual Research Corporation (FMRC) Approval requirements for use as Class I wall and ceiling panels.

Examination included a wall/ceiling channel test, evaluation per FMRC small scale flammability apparatus, and selected identification and Q.C. tests.

Tests show that the Durashield wall and ceiling panels meet FMRC Approval requirements for use as non-load bearing wall and ceiling panels when installed as described in the **CONCLUSIONS** of this report. These panels do not require automatic sprinkler protection when permitted by FMEC Loss Prevention Standards.

MATERIAL DESCRIPTION

Durashield panels are non-reinforced rigid PVC - based sheets. They are available in various configurations.

CONCLUSIONS

Fire tests show the Durashield panels, at a maximum 3.2 thickness, meet FMRC Approval requirements for class I plastic wall and ceiling panels in unlimited height for non combustible occupancies where sprinklers are not required. The panels in and of themselves do not require automatic sprinkler protection when installed on walls and ceiling. They also would be acceptable in a combustible occupancy when protected by automatic sprinkler defined by FMEC Loss Prevention Standards. The panels must be positively secured by mechanical fastening of the entire panel assembly to supporting structural members as follows :

Fastening of Durashield Panels to :

A	Wood	- Use #14 Type A Stainless Steel (304) Fasteners;
B	Structural Steel	- Use #24 Type B Stainless Steel (304) Fastener
C	Phase-2 Panels	- At side laps or end laps, Use Type SGSF (Grommet Seal Fasteners).

DURASHIELD®

TESTING TO AS 2376 - EXTRUDED PVC

TESTING AUTHORITY: AMDEL LIMITED
DATE: 15 April 1993

Profile Name	Thickness
Greca	1.3mm
Industrial Rib	2.0mm
Industrial Wave	3.0mm

It was requested that the sheet samples supplied be tested to sections of the Australian Standard AS 2376.1 - 1980 “Plastic Building Sheets Part 1 - Extruded PVC”.

PROCEDURE

Retention of Profile

A series of three specimens were removed from each type of sheeting. The specimens incorporated a minimum of three complete profiles and a minimum of 300mm in length. The specimens were tested following the procedures outlined in AS 2376.1 - 1980 Appendix D “Method for Determining Retention of Profile at 60 C”. The method of testing also incorporated the testing outlined in AS 2376.1 - 1980 Appendix B “Method for Determining Sheet Dimensions”.

Impact Resistance

A series of fourteen specimens were removed form each type of sheeting. The specimens were cut to produce nominally flat samples being a square with 35mm sides. The specimens were tested following the procedures outlined in As 2376.1 - 1980 Appendix E “Method for Determining Impact Resistance”.

Colourfastness and Impact Resistance Following Ultraviolet Light Exposure

A series of six specimens were removed from each type of sheeting. The specimens were w cut to produce nominally flat samples being a square with 50mm sides. The specimens were tested following the procedures outlined in AS 2376.1 - 1980 Appendix F “Method for Determining Colourfastness, Light Transmission and Impact Resistance following Ultraviolet Light Exposure”. The exposed specimens were not tested for the light transmission section of this Appendix.

TESTING TO AS 2376 - EXTRUDED PVC (CONT)

RESULTS

Retention of Profile

Description	Original Thickness (mm)	Original Width (mm)	% Change of Profile
1.3mm Greca	1.28	1130	0.18, 0.09, 0.26 av. 0.18
2.0mm Industrial Rib	1.94	1129	0.08, 0.07, 0.02 av. 0.06
3.0mm Industrial Wave	2.93	1130	0.33, 0.34, 0.14 av. 0.27

Impact Resistance

Description	No. of Samples	Comments
1.3mm Greca	14	No holes or fractures were apparent, minor denting in each of the samples
2.0mm Industrial Rib	14	No holes or fractures were apparent, minor denting in each of the samples
3.0mm Industrial Wave	14	No holes or denting fractures were apparent

Colourfastness and Impact Resistance Following Ultraviolet Light Exposure

The following results were obtained following 14 days of UV exposure.

TESTING TO AS2376 - EXTRUDED PVC (CONT)

RESULTS (CONT)

Table 3 UV Exposure Results

Description	No. of Samples	Comments
1.3mm Greca	5	No cracking or crazing was observed. No apparent difference in colour change. No significant damage after impact testing, only minor denting.
2.0mm Industrial Rib	5	No cracking or crazing was observed. No apparent difference in colour change. No significant damage after impact testing, only minor denting.
3.0mm Industrial Wave	5	No cracking or crazing was observed. No apparent difference in colour change. No significant damage after impact testing.

SUMMARY

Following the testing carried out on the samples supplied of the sheeting types 1.3mm Greca, 2.0mm Industrial Rib and 3.0mm Industrial Wave, the following comments can be made.

All three white PVC sheet types comply to Retention of Profile, Impact Resistance, Colourfastness and Impact Resistance following ultraviolet light exposure requirements of the Australian Standard AS 2376.1 - 1980.

DURASHIELD®

ULTIMATE STRENGTH STATIC TEST : AS2424

TESTING AUTHORITY: CIVIL TEST
TEST NUMBER: C930308
DATE: 21 April 1993

Sheeting details:

Profile Name	Thickness	Width
Industrial Wave	3.0mm	1130mm
Industrial Rib	2.0mm	1060mm
Greca	1.3mm	1080mm

Fastening

1. Industrial Wave and Industrial Rib sheetings were fixed with 65mm x 17g, with 10mm hex head and 30mm washers.
2. All Greca 1.3mm sheetings were fastened with Suntuf type 17 self drilling screw, 50mm x 12g hex head and standard 20mm dek washers.

A test specimen consisted of one sheet fastened onto three or four purlins over two or three spans by appropriate fasteners. Details of specimens are listed in the following table:

Specimen Number	Specimen Type	Fastener Type	Span Model (mm)	O/H (mm)	Fasteners Internal Purlins	End Purlins
1	I/W	Hi-Rib	900/900	100	3rd crest	2nd crest
2	I/R	Hi-Rib	900/900	100	every crest	every crest
3	Greca	Suntuf	800/800	50	3rd crest	2nd crest
4	I/R	Hi-Rib	1200/1800/1200	100	every crest	every crest
5	I/W	Hi-Rib	1200/1500/1200	100	3rd crest	2nd crest
6	Greca	Suntuf	800/1000/800	50	3rd crest	2nd crest

ULTIMATE STRENGTH TEST : AS2424 (CONT)

PROCEDURE

A uniform test pressure was applied to each test specimen, beginning at a pressure of 5 kPa, 3 kPa and .15 kPa for the Industrial Wave, Industrial Rib and Greca specimens respectively, and increasing the load in increments of 0.5 kPa. The pressure was sustained for 1 minute each time. The loads were increased until either the sheeting disengaged by either failure of the connection between the sheeting and the fastener, the connection between the fastener and the purlin, or by fracture of the fastener. If the supporting purling fractured then the testing was ceased.

Observations were made of the load at which buckling of the crests around fasteners occurred, the degree of pull through of the sheeting around the fasteners, the observed ultimate load, the observed failure load and the observed failure mode. Typical modes of failure were by the pulling out of the fastener from a purlin or the breaking of a purlin. No failure occurred where the specimens fractured or toe around a fastener.

TEST RESULTS

Ultimate Strength Static Test

Results of testing of the 6 specimens for the three types of profile are summarised in the following table:

Specimen Number	Specimen Type	Buckling Load (kPa)	Observed Ultimate Load (kPa)
1	Industrial Wave	7	13
2	Industrial Rib	6	9
3	Greca	1.5	6
4	Industrial Rib	3	4.5
5	Industrial Wave	4	7
6	Greca	1.5	5.5

DURASHIELD®

IMPACT TEST AS/NZS1562.3:1996- FORMERLY AS2424

TESTING AUTHORITY: CIVIL TEST
TEST NUMBER: C930308
DATE: 21 April 1993

Sheeting details:

Profile Name	Thickness	Width
Industrial Wave	3.0mm	1130mm
Industrial Rib	2.0mm	1060mm
Greca	1.3mm	1080mm

Fastening

1. Industrial Wave and Industrial Rib sheetings were fixed with 65mm x 17g, with 10mm hex head and 30mm washers.
2. All Greca 1.3mm sheetings were fastened with Suntuf type 17 self drilling screw, 50mm x 12g hex head and standard 20mm dek washers.

A test specimen arrangement consisted of three interlocking sheets fastened onto four purlins over three spans by appropriate fasteners. (Refer to photograph #4 for a view of the general assembly). The centre sheet is the test sheet. Details of specimens are listed in the following table:

Specimen Number	Specimen Type	Fastener Type	Span Model (mm)	O/H (mm)	Fasteners Internal Purlins	End Purlins
1	I/W	Hi-Rib	900/1300/900	100	3rd crest	2nd crest
2	I/R	Hi-Rib	900/1500/900	100	every crest	every crest
3	I/W	Hi-Rib	900/1800/900	50	3rd crest	2nd crest
4	I/W	Hi-Rib	900/1800/900	100	every crest	every crest

Note: O/H = Overhang measured from outer edge of end purlins.

IMPACT TEST AS/NZS1562.3:1996 - FORMERLY AS2424 (CONT)

PROCEDURE

A 25kg sandbag was released from a drop height of 2.5m so as to impact on the test span of the specimen at a point midway between crests at approximately the centre of the test sheet. The impact point was 300mm from the inside edge of one internal purlin when testing the internal span.

TEST RESULTS

Impact Tests

Results of the 4 specimens tested are summarised in the following table:

Specimen Number	Specimen Type	Overhand (mm)	Tested Span	Test Result
1	Industrial Wave	100	End Span	Pass
2	Industrial Rib	50	End Span	Pass
3	Industrial Wave	100	Internal Span	Pass
4	Industrial Rib	50	Internal Span	Pass

DURASHIELD®

CYCLONE TEST : AS/NZS 1562 3:1996

TESTING AUTHORITY: ENGTEST

TESTING NUMBER: C980404

DATE: 13TH MAY 1998

SHEETING DETAILS

Durashield Industrial Wave 2.0mm thick, 1120mm wide.

FASTENING

1. Self-drilling tek fasteners 50mm x 14g hex head with cyclonic assemblies were used to fasten the profile to purlins.

2. The sheeting was fastened to the purlins at every crest.

   The test specimen arrangement consisted of sheeting fastened to a horizontal platform where Steel 100 x 50 x 2.0 RHS sections were used as supporting purlins.

Sheeting Lengths	End Spans	Mid Spans	Width
3300mm	900mm	1200mm	1820mm

PROCEDURE

The simulated cyclonic loads were applied to the sheeting through air bags supported on a rigid horizontal platform of 1820mm width. The platform is raised and lowered, exerting appropriate pressures on the sheeting, by the use of four hydraulic jacks.

The maximum level of pressure is applied to the sheeting with 4.5 KPA. The minimum pressure level was 0.5 kPA, representing 10% of the upper bound.

CYCLONE TEST : AS2424 (CONT.)

PROCEDURE (CONT.)

After the 10,000 cycles were completed, a static load of 8.1 kPA was applied to the sheeting for 2 minutes. This figure represents 1.8 x the upper bound of the cyclic pressure of 4.5 kPA.

The number of test cycles was set at 10,000 for this test. The cycling rate was approximately 50 cycles per minute.

RESULTS

The sheeting profile passed the 10,000 cycles without any cracking of the sheeting material. The fasteners remained intact with the purlins and there was no pull through of the sheeting from the fasteners.

Similarly, when the static load of 8.1 kPA was applied to the sheeting profile, the sheeting remained intact with the purlins, without any cracking of the sheeting material.

CHEMICAL RESISTANCE

The mechanism of chemical attack on thermoplastics in general and DURASHIELD in particular differs substantially from the mechanism of corrosion of metals. Corrosion of metals consists in a gradual loss of surface material by chemical or electrolytic action. Chemical attack on DURASHIELD - if it does occur - consists generally of absorption and subsequent swelling of the material. The corrosion behaviour of DURASHIELD is therefore generally simple to determine since any chemical attack would be expressed in terms of weight change (usually an increase) and some slight volume change.

In general it can be stated that DURASHIELD panels offer excellent resistance against the following chemicals, in both liquid and vapour form:

- Mineral Acids
- Plating Solutions
- Pickling Solutions
- Alcohols
- Glycols
- Alkalis
- Paper Making Chemicals
- Most Inorganic Compounds
- Aliphatic Hydrocarbons
- Amines & Phenol's

The list below covers the Chemical Resistance of DURASHIELD to the most commonly encountered chemicals. The ratings R (resistant) and NR (not resistant) are based on actual service installations as well as laboratory tests. Corrosion resistance against individual chemicals and mixtures not listed will be furnished upon request.

NOTE: DURASHIELD Panels are not recommended for use with Acetone Ethers, Esters, Aromatic and Chlorinated Hydrocarbons.

The information of chemical resistance is based on our research and experience and may be considered as a basis for recommendation but not as a guarantee.

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CHEMICALRESISTANCE (CONT)

Inorganic Acids/Acid Mixtures	*70 F*	*140 F*	*Alkalies and Bases*	*70 F*	*140 F*	*Inorganic Salts and Compounds*	*70 F*	*140 F*
Aqua Regia	R	R	Potassium hydroxide (10%)	R	R	Fluorine (Gas)	R	R
Arsenic Acid (80%)	R	R	Sodium Hydroxide (10%)	R	R	Hydrogen Peroxide (10%)	R	R
Boric Acid	R	R	Sodium Hydroxide (50%)	R	R	Hydrogen Peroxide (30-50%)	R	R
Bromic Acid	R	R						
ChromicAcid	R	R	Inorganic Salts and Compounds			Hydrogen Sulfide	R	R
(40%)			Aluminium Chloride	R	R	Iodine	NR	NR
Fluboric Acid	R	R	Aluminium Fluoride	R	R	Magnesium Chloride	R	R
Fluosilicic Acid	R	R	Aluminium Sulfate	R	R	Magnesium Sulfate	R	R
Hydrobromic Acid (20%)	R	R	Ammonia (Gas)	R	R	Nickel Sulfate	R	R
Hydrochloric Acid (35%)	R	R	Ammonia (Liquid)	LR	LR	Nitrous Oxide	R	R
Hydrochloric Acid (10%)	R	R	Ammonium Bilfouride	R	R	Ozone	R	R
Hydrofluoric Acid (48%)	R	R	Ammonium Chloride	R	R	Phosphorous (Yellow)	R	R
Hydrofluoric Acid (10%)	R	R	Ammonium Fluoride (25%)	R	R	Phosphorous Pentoxide	R	R
Nitric Acid (68%)	R	R	Ammonium Nitrate	R	R	Phosphorous Trichloridre	NR	NR
Nitric Acid (25%)	R	R	Ammonium Sulfate	R	R	Plating Solutions	R	R
Nitric Acid (10%)	R	R	Ammonium Sulfide	R	R	Potassium Bromate	R	R
Nitric Acid (15%)	R	R	Antimony Trichloride	R	R	Potassium Bromide	R	R
Hydrofluoric Acid (4%)	R	R	Barium Chloride	R	R	Potassium Chlorate	R	R
Nitric Acid (50%	R	R	Barium Sulfate	R	R	Potassium Cyanide	R	R
Hydrofluoric Acid (10%)	R	R	Barium Sulfide	R	R	Potassium Ferricyanide	R	R
Oteum	NR	NR	Bromine (Liquid)	NR	NR	Potassium Fluoride	R	R
Perchloric Acid (70%)	R	NR	Bromine (Water)	R	R	Potassium Nitrate	R	R
Perchloric Acid (10%)	R	R	Calcium Chloride	R	R	Pot Permanganate (10%)	R	R
Phosphoic Acid (85%)	R	R	Calcium Hypochlorite	R	R	Potassium Sulfate	R	R
Phosporic Acid (15%)	R	R	Calcium Nitrate	R	R	Silver Nitrate	R	R
Selenic Acid	R	R	Calcium Sulfate	R	R	Sodium Bisulfite	R	R
So:ococ Acod	R	R	Carbon Bisultide	LR	LR	Sodium Chlorate	R	R
Sulfuric Acid (99%)	R	R	Chlorine Gas (Dry)	R	R	Sodium Fluoride	R	R
Sulfuric Acid (80%)	R	R	Chlorine Gas (Wet)	R	NR	Sod Hypochlorite (16% Ch)	R	R
Sulfuric Acid (35%)	R	R	Chlorine Water	R	R			
Sulfuric Acid (10%)	R	R	Chlorine Dioxide (15%)	R	R	Sodium Nitrate	R	R
						Sodium Sulfate	R	R
Alkalies and Bases			Copper Nitrate	R	R	Sodium Sulfide	R	R
Aluminium Hydroxide	R	R	Copper Sulfate	R	R	Sodium Sulfide	R	R
Ammonium Hydroxide (28%	R	R	Ferric Chloride	R	R	Stannic Chloride	R	R
Ammonium Hydroxide (10%)	R	R	Ferric Nitrate	R	R	Stannous Chloride (25%)	R	LR
Barrum Hydroxide	R	R	Ferric Sulfate	R	R	Sulfur Dioxide (Gas)	R	R
Calcium Hydroxide	R	R	Ferrous Chloride	R	R	Trisodium Phosphate	R	R
Magnesium Hydroxide	R	R	Ferrous Nitrate	R	R	Zinc Chloride	R	R
Potassium Hydroxide (50%)	R	R	Ferrous Chloride	R	R	Zinc Sulfate	R	R
			Ferrous Sulphate	R	R			

R = RESISTANT LR = LIMITED RESISTANCE NR = NOT RESISTANT

DURASHIELD®

CONTACT WITH FOODSTUFFS

CERTIFICATE OF CONFORMITY: No. CP92369(2)/SS/93
TESTED BY: S.G.S. United Kingdom Ltd

MATERIAL NAME: White Durashield

SAMPLE RECEIVED: 20 January 1993

The material meets the overall migration limit as specified in EEC Commission Directive 90/128/Eec for the foodstuffs listed below in applications up to a temperature of 40 C for a contact time of unlimited duration.

Test Conditions:

a) Simulant(s)	Olive Oil	Water	3% w/v acetic acid	15% of v/v ethanol
b) Temperature(s)	40 C	40 C	40 C	40 C
c) Time(s)	10 days	10 days	10 days	10 days

In the above test(s) 1 dm^2 is assumed to have 1 dm^2 surface area.

Date of Test: 22 January - 10 February 1993

This material is suitable for contact with all categories of foodstuffs as detailed in EEC Council Directive 85/572/Eec of 19 December 1985.