HYDROCLEAN
Hygienic Wall Cladding

Data Sheet

DESCRIPTION
Extruded Semi-rigid PVC Sheet Colour:
See Colour Swatch
Surface Finish: Semi-Matt
Thickness: 2.5mm
Size: 2500 x 1220mm
3000 x 1220mm
Weight: 3.5kg/m^2
Maximum Service Temp: 60°C

Hydroclean extruded sheet is supplied with a peelable film providing protection throughout installation. The system provides a hygienic, easy to clean and almost maintenance free surface finish.

PREPARATION
Surface preparation of walls prior to installation is normally minimal, depending on substrate type/condition. Surfaces must be dry, free of dust, grease or other contaminants to ensure thorough bonding of the adhesive.

Please contact technical services on 01420 543222 for specific advice.

INSTALLATION
Hydroclean can be fixed directly to most dry substrates using one of the following methods.

1. 2-part Epoxy Trowel-on Glue
A 2 part polyurethane full coverage adhesive for most substrates.

2. Single part Water based Glue
A single part, water based full coverage adhesive for porous substrates only.

CUTTING
The sheet can be cut with a jigsaw, electric nibblers or a fine toothed handsaw.

JOINTING
1. A high impact, 1 part PVC H joint, co-extruded with an integral watertight seal at the mouth of the joint.
2. Silicone joint 3-4mm wide.
3. Hot Welded Joint

INTERNAL/EXTERNAL CORNERS
Hydroclean can be thermoformed on site to ensure internal and external corners, including window and door reveals are neatly clad without an edge joint.

MAINTENANCE
Regular cleaning with a mild liquid detergent and warm water using a soft, non abrasive cloth will ensure quality of performance. The sheet is resistant to solvent cleaning if necessary (Hydroclean cleaner T308). A non abrasive domestic type cream cleaner can be used for stubborn marks. Do not use abrasive cleaners or pads.

CHEMICAL RESISTANCE
Hydroclean has a smooth non-porous surface with dimensional stability and excellent chemical resistance. A full chemical resistance chart is available on request.

STORAGE AND CONDITIONING
Sheets should be stored flat and fully supported.
Leave for 24 hours to attain the ambient room temperature (Min 14°C)

LIMITATIONS OF USE
Hydroclean has a maximum service temperature of 60°C.
For temperatures above this and in all open flame areas use stainless steel. Contact technical services on 01420 54322.

FOOD SAFETY
Approved to EC Directive 97/48/EC.

HYGIENE
Hydroclean does not contain heavy metals.
Hydroclean does not support the growth of bacteria or mould.

FIRE BEHAVIOUR
Hydroclean Wall Cladding achieves the following standards:
BS476 Part 7 Classification 1
BS476 Part 6 Classification 0
EN ISO 13501 Classification Bs3d0

Hydroclean is self extinguishing.

FULL CERTIFICATION AVAILABLE ON REQUEST.

Specialist Door Solutions Unit 1, Bordon Trading Estate, Old Station Way, Bordon, Hampshire, GU35 9HH
T: 01420 543222 | sales@specialistdoorsolutions.com | www.specialistdoorsolutions.com

Company Registration No. 04187742 VAT Registration No. 212 1628 11 ISO 9001Registered Firm CHAS Accredited

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MSDS - Material Safety Data Sheets

Rigid Polyvinyl Chloride Sheet

DATE OF ISSUE : 20 April 2004
Updated : 1 March 2006

SDS urges the recipient of this Material Safety Data Sheet to study it carefully to become aware of hazards, if any, of the product involved.
In the interest of safety you should (1) notify your employees, agents and contractors of the information on this sheet, (2) furnish a copy to each of your customers for the product, and (3) request your customers to inform their employees and customers as well.

1. IDENTIFICATION OF THE SUBSTANCE

TRADE NAMES	: Hydroclean
PRODUCT NAMES	: Rigid Polyvinyl Chloride sheets
CHEMICAL NAME	: Polyvinyl Chloride Homopolymer
CHEMICAL FAMILY	: Polyvinyl Chloride
FORMULA	: $(CH^3CH^2Cl)^n$
CAS number	: 9002-86-2
UN number	: None
ACX number	: X1007407-8
RTECS	: KV0350000
SYNONIMS	: PVC
NFPA RATINGS	: HEALTH=1, FIRE=0, REACTIVITY=0

2. COMPOSITION/INFORMATION OF INGREDIENTS

Tin stabilized PVC sheets, 2.5% by weight tin-maleate or tin-mercaptide based stabilizer. Pigments and additives used to enhance specific properties are encapsulated in the polymer resin matrix. No solvents. No plasticizers. **No cadmium, lead or other heavy metals used.**

3. HAZARDS IDENTIFICATION

No particular hazards known.

HEALTH HAZARDS DATA

- EFFECTS OF A SINGLE EXPOSURE
  - Swallowing : non relevant
  - Skin absorption : non-relevant
  - Inhalation : non-relevant
  - Skin Contact : exposure is not expected to cause adverse health effects
  - Eye Contact : non-relevant

- EFFECTS OF A REPEATED OVEREXPOSURE - None currently known

- MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE - Non currently known

- OTHER EFFECTS OF EXPOSURE - None currently known

4. FIRST AID MEASURES

In general handling the material will not cause accidents.

INHALATION

- Route of entry - inhalation : No
- If exposed to combustion fumes in high concentration - bring victim to fresh air. Medical attention needed.

INGESTION

- Route of entry - ingestion : No

SKIN CONTACT

- Burns resulting from accidental contact with molten material must be flushed immediately with cold water
- Do not remove the polymer from the skin.

SKIN ABSORPTION

- Route of entry - skin : No

EYE CONTACT

- Like any foreign body, can cause mechanical irritation. Consult physician

NOTES FOR THE PHYSICIAN

- There are no specific notes

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Water Spray of CO^2. CO^2 is less recommended due to lack of cooling capacity.

EXINGUISHING MEDIA TO AVOID

- No information currently available

SPECIAL FIRE FIGHTING PROCEDURES

- Personnel without suitable respiratory apparatus should leave the affected area to prevent exposure to toxic or combustible gases

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

- Personnel without suitable respiratory apparatus should leave the affected area to prevent exposure to toxic or combustible gases

UNUSUAL FIRE AND EXPLOSION HAZARDS

- PVC is a self extinguishing fire retardant material, that being exposed to open fire and high temperatures decomposes emitting large quantities of HCl, which tends to extinguish the flames. It does not continue to burn after ignition without an external fire source. HCl has a strong acidic odour that causes sensory alert at very low concentrations. HCl odour threshold = 0.77ppm. Exposure to high concentrations of HCl will cause irritation of the respiratory passages, at very high concentrations may cause burns to mucous membranes.

OSHA legal airborne PEL is 5ppm, not to be exceeded at any time. ACGIH recommended airborne exposure limit is 5ppm, which should not be exceeded at any time. Soot emitted when PVC is forced to burn may obscure visibility.

6. ACCIDENTAL RELEASE MEASURES

No special precautions and no personal protective equipment needed. Collect mechanically for disposal.

7. HANDLING AND STORAGE

HANDLING

General handling precautions

- avoid mechanical contact with eyes
- general (mechanical) room ventilation is expected to be satisfactory where this product is stored and handled

Other precautions

- No explosion hazard. In the event of fire, cool and overlap product with water
- Static electricity discharge sparks possible during handling. Avoid contact or vicinity of flammable materials
- When opening truck or railcar for unloading, ventilate before entering

STORAGE

- Store in a cool shady area. No special technical protective measures required.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS

No occupational exposure limits established by OSHA, ACGIH or NIOSH.

PERSONAL PROTECTION

- Respiratory protection : No special protection needed
- Hand protection/protection gloves : No special protection needed
- Eye Protection : No special protection needed
- Other protective equipment : No special protection needed

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	: flat or corrugated plastic sheets
PHYSICAL STATE	: solid
COLOUR	: clear or coloured
ODOUR	: none
DENSITY	: 1.35 - 1.45gr/cm^3
HEAT DEFLECTION	: 62-65°C
BOILING POINT, 760 Hg	: not relevant
VISCOUSITY	: not relevant
SOLUBILITY IN WATER	: <0.1g/100ml at 23°C
pH VALUE	: not relevant
FLASH POINT	: 391°C ASTM D 1929
AUTOIGNITION TEMP.	: 454°C ASTM D 1921
FLAMMABILITY LIMIT	: none
EXPLOSION LIMITS	: none
EVAPORATION RATE	: not relevant
PERCENT VOLATILES	: not relevant

10. STABILITY AND REACTIVITY

STABILITY : Stable

Conditions to avoid

- Excessive heat, or open flame. Temperature above 150°C will decompose raw polymer resin and liberate HCl.
- Incompatible materials - Oxidizing agents or strong mineral acids can cause reaction.
- Thermal decomposition - Begins above 150°C caused by fire, overheating duringimproper processing. Fumes damaging to health may be released.
- Hazardous decomposition products - Burning can produce the following combustion products:-
- Carbon Monoxide (CO) : highly toxic if inhaled
- Carbon Dioxide (CO^2) : in sufficient concentrations can act as an asphyxiant
- Hydrogen Chloride (HCl) - in high concentrations cause irritation of the respiratory passages
- At very high concentrations may cause burns to mucous membranes

REACTIVITY

- Hazardous polymerisation : Will not occur
- Hazardous reactions : None

11. TOXOLOGICAL INFORMATION

PVC materials have a very low acute toxicity. In rats an acute LD50 >10gr/kg of body weight.
PNEUMOCONIOSIS has been described from inhalation of combustion products (effects of overexposure).
Industrial hygiene studies have shown that under normal and expected conditions of use of PVC materials, exposures are well below applicable limits.

ACUTE TOXOLOGICAL INFORMATION

- Acute oral toxicity : none
- Acute percutaneous toxicity : none
- Acute vapour exposure : none
- Primary skin irritation : none
- Eye irritation : no irritation
- Sensitization : no information available
- Chronic effects : unknown
- Carcinogenicity - NTP : not listed
- IARC : not listed
- OSHA : not listed

OTHER TOXOLOGICAL INFORMATION

No known toxological effects with normal use. For heating see section 10.

ADDITIONAL INFORMATION

No additional toxicity information currently available.

12. ECOLOGICAL INFORMATION

PERSISTANCE AND DEGRADABILITY

Detailed studies have not been conducted concerning the environmental fate of the product.
According to present knowledge, no unfavourable ecological effects are to be expected. Not generally hazardous to water. Insoluble in water, non-toxic solid.

- Mobility : No information currently available
- Persistance and biodegradability : Biodegradation period - tens of years
- Bioaccumulative potential : No information currently available

ENVIRONMENTAL RISKS

No hazard expectation to terrestrial or aquatic flora or fauna.

- Ecotoxity : LD50 (rats) > 10gr/kg
  : IC50 (bacterial inhibition) - no data available
- Aqua toxicity : LC50 (daphnia magna) - no data available
  : LC50 (fathead minnow - fish) - no data available

OTHER INFORMATION

All available ecological data have been taken into account for the development of the hazard and precautionary information contained in this safety data.

13. DISPOSAL CONSIDERATIONS

The product is not considered hazardous under current EPA hazardous waste regulations.
Recycling is the preferred method of disposal.
Alternatively, the product may be disposed of in an approved landfill.
High temperature incineration under controlled conditions due to the formation of HCl.
All wastes should be evaluated in conjunction with applicable solid and hazardous waste regulations, Toxicity Characteristic Leaching Procedures (TCLP), and disposed of as appropriate.
This product does not contain any cadmium or other heavy metal pigments or stabilizers.
It is the user's responsibility to dispose of all wastes in accordance with all national and local regulations at properly permitted or authorized facilities.

14. TRANSPORT INFORMATION

DOT PSN Code	: ZZZ
DOT Proper Shipping Name	: Not regulated by this mode of transportation
IMP PSN Code	: ZZZ
IMP Proper Shipping Name	: Not regulated by this mode of transportation
IATA PSN Code	: ZZZ
IATA Proper Shipping Name	: Not regulated by this mode of transportation
AFI PSN Cod	: ZZZ
AFI Proper Shipping Name	: Not regulated by this mode of transportation
Additional Transportation Data	: Not currently regulated under Department of Transportation regulations
Labelling	: No labelling is required in accordance with the EEC directives
Placarding	: No placarding is required in accordance with the EEC directives
Special transport requirements	: None
Packaging	: Avoid dark-coloured packaging to prevent heat distortion

The product is classified as a non-hazardous material in the meaning of transport regulations.

15. REGULATORY INFORMATION

With regards to dust formed as a consequence of mechanical treatments, the appropriate regulations value limits for find dust must be observed: MAC value (fine dust) - 5mg/m^3.
OSHA Hazard Communication Classification for dusts and combustion fumes: Irritant, Skin Hazard and Lung Hazard.
SARA Title III Classification for dusts and combustion fumes: Acute Health Hazard; Chronic Health Hazard.
WHMIS Classification: Non hazardous

16. OTHER INFORMATION

RECOMMENDED USES AND RESTRICTIONS

Please consult the relevant product and application information for this product.

FURTHER INFORMATION

Additional information on this product may be obtained by calling your dFend Hydroclean Sales or Customer Service Contact at SDS on
T: 01420 543222;
F : 01420 543355;
E : info@specialistdoorsolutions.com

DISCLAIMER

SDS believes that the information and recommendations contained (including data and statements) in this MSDS are accurate as of the date hereof.

This MSDS is based on information that is believed to be reliable, but may be subject to change as new information becomes available. Since it is not possible to anticipate all conditions of use, additional safety precautions may be required. The information is neither designed nor recommended for any other use than as safety data, or for use by any other person than the direct user and not for compliance with other laws.

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HYDROCLEAN PERFORMANCE STANDARD

Hydroclean is a rigid opaque extruded PVCu sheet.
With excellent fire and chemical resistance, easy handling and fabrication, it has excellent electrical and thermal insulation and is non toxic.
Typical applications for Hydroclean are hygienic wall and door cladding in hospitals, laboratory, chemical processing, pharmaceutical areas, food preparation areas, wet rooms, clean rooms, etc.

Quality Assurance
Hydroclean is manufactured to a Product Specification and written Operator Instructions approved to Quality Assurance ISO 9001:2000 accredited by SGS by 18 November 2005.

Approved for use with foodstuffs:
Hydroclean is approved for use with foodstuffs as specified in European Union Directive 97/48/EC. Material accredited by The Packaging Institute Research Authority (PIRA).

No concentrations of Heavy Metals
Hydroclean complies with the European Union RoHS Directive 2002/95/EC regarding the concentrations of heavy metals and heavy metal compounds of Lead (Pb), Cadmium (Cd), Mercury (Hg) and Hexavalent Chromium (CrVI) and concentrations of flame retardants based on polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).

Contains no banned or restricted substances
Hydroclean does not contain any of the Ericsson list of banned or restricted substances.

Materials Conformity Declaration
Hydroclean conforms to material safety data specified within European Union Directive EC 91/155/EEC.

Fire Resistance and Classification
Hydroclean meets fire resistance classification BS476: Part 7: Surface Spread of Flame: Class 1; BS476: Parts 6 & 7: Class 0, and European Union ISO EN 13501-1: B-s3,d0.

Anti-microbial behaviour
Hydroclean can prevent and reduce colonies of specified micro-organisms when tested by Industrial Microbiological Services Ltd (IMSL) to ASTM AATCC 100 and/or JIS Z2801.

FOR MORE INFORMATION, PLEASE CONTACT:
Specialist Door Solutions Ltd
T : 01420 543222
info@specialistdoorsolutions.com

HYDROCLEAN Typical Physical Properties

Property	Method	Conditions	Units	Value
Density	D-1505		g/cm^3	1.4
Heat Deflection Temperature	D-648	Load 1.82 MP	°C	65 - 68
Service Temperature Range			°C	-10 to +50
Thermal Conductivity	C-177		W/m K	0.15
Coefficient of thermal linear expansion	D-696		cm/cm °C	6.7×10^5
Impact falling weight	ISO 6603/1	3mm sheet	J	95
Rockwell Hardness	D-785		R scale	97R
Tensile strength at yield	D-638	10mm/min	MPa	52
Tensile strength at break	D-638	10mm/min	MPa	50
Elongation at yield	D-638	10mm/min	%	3
Elongation at break	D-638	10mm/min	%	140
Tensile modulus of elasticity	D-638	1mm/min	MPa	2 900
Flexural Strength	D-790	1.3mm/min	MPa	80
Flexural modulus	D-790	1.3mm/min		2 700

Cleaning & Maintenance Instructions

dFend and Hydrocleanwall sheets and profiles, including stainless steel, aluminium and wood products, all require the same care as any other household finish. Regular cleaning will keep these products looking good for years.

dFend and Hydroclean Sheet and Profile Cleaning Instructions

Any dFend or Hydroclean wall covering or profiles product (including Woodgrain and Faux Metal) can be cleaned in the following way:

1. Light soil, crayon, lipstick, blood and other mild staining agents can be removed using a Cleaning Block Rubber, or non-abrasive household cleaners and water, such as washing-up liquid. Following use of the cleaner, the cleaned surface should be rinsed with clean water and wiped dry to remove any remaining residue.

2. Stubborn stains such as ball point pen, permanent marker, dry erase marker and shoe scuffs can be removed by using denatured alcohol, isopropyl alcohol or ethyl alcohol with a lint-free wipe. When using alcohol, care must be taken not to permanently mar the surface of dFend by excessive rubbing.

3. For additional protection and lustre, a coat of spray wax or vinyl enhancer may be applied. Recommended brands are Johnson Wax® or Pledge®.

WHEN USING CLEANING BLOCK RUBBER OR WIPES, ALWAYS SCRUB WITH THE GRAIN OF THE dFEND PRODUCT. FOLLOW WITH SOAP AND WATER TO REMOVE ANY RESIDUE.

DO NOT USE METHYLETHYL KETONE (MEK), CLEANERS CONTAINING MEK, BLEACH OR ANY OTHER CLEANERS CONTAINING HARSH SOLVENTS ON dFEND PRODUCTS.

POWDERED CLEANSERS OR CREAM CLEANERS ARE NOT RECOMMENDED AS THEY ARE ABRASIVE AND TEND TO LEAVE A RESIDUE IF NOT USED PROPERLY.

DO NOT USE SCOTCH-BRITE™ PADS, STEEL WOOL OR CLEANING PADS SUCH AS BRILLO® or S.O.S.® ON ANY dFEND PRODUCTS.

dFend Wood Products Cleaning Instructions

All wood products can be cleaned in the following manner:-

1. Chips, dents and scratches can be repaired using standard wood fillers. Either rub or press in and remove the excess. Colour may be applied with Instant Touch-up Marker or Pro-Mark II Marker.

2. Surface scratches, scuffs or rubbed edges may be re-coloured with the markers described above.

3. Dust and light soil can be removed by using mild soap and water or non-abrasive household cleaners.
Soft cloths/cleaning towels are recommended during the cleaning process.

DO NOT WAX THE HANDRAIL.

DO NOT USE SOLVENT BASED CLEANERS ON WOOD.

dFend Stainless Steel and Aluminium Cleaning Instructions

All Stainless Steel and Aluminium products can be cleaned in the following manner:-

1. Dust and light soil can be removed using mild soap and water or non-abrasive household cleaners.
Soft cloths/cleaning towels are recommended during the cleaning process.

2. Stainless Steel and aluminium components will easily maintain their brilliant appearance using the products mentioned and occasionally polishing with a quality metal cleaner such as Brasso®.

3. Stubborn stains can be removed by using isopropyl alcohol, acetone or a thinner. Our experience has shown that a solvent is very seldom needed when cleaning stainless steel or aluminium.

DO NOT USE ABRASIVE CLEANERS, SCOTCH BRITE™ pads or steel wool.

For more information, please contact Specialist Door Solutions
T : 01420 543222
F : 01420 543355
info@specialistdoorsolutions.com