

MATERIAL SAFETY DATA SHEET
Date of Issue 15/05/2008

Please consult prior to use.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **GRC FLEXIMOULD EXTRA 45 PART B**
Product Description: Component for the manufacture of urethane polymers
Supplier: Fibre Technologies International
 Avonmouth Way, Avonmouth
 Bristol BS11 9YA
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2. HAZARDS IDENTIFICATION

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION / INFORMATION ON THE COMPONENTS

Component	Amount	Classification	CAS #	EC #
VARIABLE MIXTURE OF VARIOUS POLYETHER POLYOLS##	50-70%	Not classified	Not available	Polymers
DIISONONYL PHTHALATE#	30-50%	Not classified	28553-12-0	249-079-5
DIETHYLMETHYLBENZENDIAMINE (DIETHYLTOLUENEDIAMINE DETDA)	3-9%	Xn:R21/22 R48/22 Xi:R36 N:R50,R53	68479-98-1	270-877-4
DIBUTYLTIN DILAURATE	0.1-0.25%	T: R48/25 Repr Cat 1: R60 Repr Cat 1:R61 Xn:R68 Xn:R22 Xi:R36 N:R51/53	77-58-7	201-039-8

#Substance(s) with an Occupational Exposure Limit
 ##Voluntary disclosed component(s)

4. FIRST-AID MEASURES



MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

Eye Contact:

Immediately flush eyes thoroughly with water for several minutes. Remove contact lenses after the first 5 minutes and

continue flushing for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

Skin contact:

Wash skin with plenty of water.

Inhalation

Move the exposed person to fresh air. If effects occur consult a physician.

Ingestion:

If swallowed seek medical attention. DO NOT INDUCE VOMITING unless directed to do so by medical personnel.

Notes to physician:

No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

Extinguishing Media:

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water streams. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Special fire-fighting procedures:

Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out of danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitors nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire

MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

water run-off, if not contained, may cause environmental damage.

Special Protective Equipment for Firefighters:

Wear positive pressure self contained breathing apparatus (SCBA) and protective fire fighting clothing. If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Unusual Fire and Explosion Hazards:

Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Hazards Combustion Product:

During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may included and are not limited to: Nitrogen oxides. Carbon monoxide. Carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is Released or spilled:

Contain spilled material if possible. Absorb with materials such as: Dirt. Sand. Sawdust. Collect in properly labelled open containers. Do not place in sealed containers.

Personal precautions:

Isolate area. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard. Wear appropriate protective clothing.

Environmental Precautions and clean-up Methods:

Spills and discharge into natural waterways is likely to kill aquatic organisms. Do not contaminate soil, ditches, water sources or sewers

7. HANDLING AND STORAGE

Handling:

Avoid contact with eyes. Do not swallow. Wash thoroughly after handling. Keep

MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

containers closed. This material is hygroscopic in nature. See section 8.

Other Precautions:

Spill of these organic materials on hot fibrous insulations may lead to lowering of the auto ignition temperatures possibly resulting in spontaneous combustion.

Storage:

Protect from atmospheric moisture. Store in a dry place. Avoid prolonged exposure to heat and air.

Store in following materials: Carbon steel, Stainless steel, Polypropylene, Polyethylene, Polyethylene lined container, Teflon, Glass-lined container, Plasite 3066 lined container, Plasite 3070 lined container, 316 stainless steel.

Storage Period:

Use within 12 months

Storage Temperature:

10-25 °C

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

	List	Type	Value
DIISONONYL PHTHALATE	Ireland OELV	TWA	5 mg/m ³
	UK WEL	TWA	5mg/m ³
DIETHYLMETHYLBENZENDIAMINE (DIETHYLTOLUENEDIAMINE DETDA)	DOW IHG	TWA	0.02ppm SKIN

A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapours or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure and that measure to minimize dermal exposures should be considered.

Personal Protection

Eye/ Face Protection:

Use chemical goggles. Chemical goggles should be consistent with EN166 or equivalent.

Skin Protection:

No precautions other than clean body covering clothing should be needed.

Hand Protection:

Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Skin contact should be minimized.

MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

Respiratory Protection:

Wear respiratory protection should be worn when there is a potential to exceed the exposure limits requirements or guidelines. If there are no applicable exposure limits requirements or guidelines, wear respiratory protection when adverse effects such as respiratory irritation or discomfort have been experienced or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed however if material is heated or sprayed use an approved air-purifying respirator.

Ingestion:

Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

*Engineering Control Measures
Ventilation:*

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilations may be necessary for some operations.

9. PHYSICAL AND CHEMICAL PROPERTIES

<i>Physical State:</i>	Liquid
<i>Colour:</i>	Colourless to yellow
<i>Odour:</i>	Characteristic
<i>Flash point – Closed cup:</i>	>120°C Estimated
<i>Flammable limits in air:</i>	Lower: No test data available Upper: No test data available
<i>Auto ignition Temperature:</i>	No test data available
<i>Vapour Pressure:</i>	No test data available
<i>Boiling point (760 mmHg):</i>	>200°C
<i>Vapour Density (air=1):</i>	No test data available
<i>Specific Gravity:</i>	1.01 – 1.04 ASTM D891
<i>Freezing Point:</i>	No test data available
<i>Melting Point:</i>	No test data available
<i>Solubility in water (by weight):</i>	Partially soluble
<i>pH:</i>	No test data available
<i>Kinematic Viscosity:</i>	500 – 1000mm ² /s @ 25°C ASTM D445

10. STABILITY AND REACTIVITY

MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

Stability/Insability:

Stable under recommended storage conditions

Conditions to avoid:

Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems

Incompatible Materials:

Avoid contact with oxidizing materials, strong acids and metals such as Brass Zinc Copper. Avoid unintended contact with isocyanates. The reaction of polyols and isocyanates generates heat.

Hazardous Polymerization:

Will not occur by itself.

Thermal Decomposition:

Decomposition products depend on temperature, air supply and the presence of other materials. Decomposition products can include but are not limited to Carbon Dioxide, Alcohols, Ethers, Hydrocarbons, Keetones, Polymer fragments.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Ingestion:

Low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. However swallowing larger amounts may cause injury. May cause nausea, vomiting, abdominal discomfort or diarrhoea.

Eye Contact:

May cause slight eye irritation. May cause moderate corneal injury.

Skin Contact:

Prolonged exposure is not likely to cause significant skin irritation.

Skin Absorption:

Prolonged skin contact is unlikely to result in absorption of harmful amounts. The dermal LD50 has not been determined. Estimated LD50, Rabbit >5000 mg/kg

Inhalation:

At room temperature, exposure to vapour is minimal due to low volatility; single exposure is not likely to be hazardous.

MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

Vapour from heated material or mist may cause respiratory irritation.

Repeated Dose Toxicity:

In rats, repeated dietary ingestion of diethyltoluenediamine (DETDA) has caused pancreatic, eye, liver and thyroid effects. For the phthalate esters(s): In animals effects have been reported on the following organs after ingestion: kidney, liver.

Chronic Toxicity and Carcinogenicity:

Diethyltoluenediamine (DETDA) has caused cancer in long-term animal studies. Increased numbers of tumours in the liver, thyroid and possibly the mammary glands were observed in rats given DETDA in their diet at exaggerated doses for 2 years. For the phthalate esters(s): Kidney effects and/or tumours have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans. Liver effects and/or tumours have been observed in rats. These effects are believed to be species specific and unlikely to occur in humans.

Developmental Toxicity:

For the phthalate esters(s): Have been toxic to the foetus in lab animals at does toxic to the mother. For the minor components: Organotin compound liquid n.o.s. (Dibutyl-tin-dilaureate) has caused birth defects in lab animals. For the phthalate esters(s): Did not cause birth defects in lab animals.

Reproductive Toxicity:

For the phthalate esters(s): In lab animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring. For the minor components: Organotin compound liquid n.o.s. (Dibutyl-tin-dilaureate) has shown to interfere with fertility in animal studies. For the phthalate esters(s): There were no effects on fertility at any dose.

Genetic Toxicology:

In vitro genetic toxicity studies were negative in some cases and positive in other cases. Genetic toxicity studies in animals were negative for components tested.

MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

12. ECOLOGICAL INFORMATION

Environmental Fate:

*Data for Component: **Variable mixture of various polyether polyols***

Movement and Partitioning: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

Persistence and Degradability: Based on stringent OECD test guidelines this material cannot be considered as readily biodegradable, however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

*Data for Component: **Diisononyl phthalate***

Movement and Partitioning: Bioconcentration is low (BCF less than 100 or log Pow greater than 7) Expected to be relatively immobile in soil (Koc>5000).

Henry's Law Constant H: 1.49E-06 atm*m3/mole;
25°C Estimated

Partition coefficient, n-octanol/water (log Pow): 9.37 Estimated

Partition coefficient, soil organic carbon/water (Koc): 5000 Estimated

Persistence and Degradability: Material is ultimately biodegradable (reaches >70% mineralization in OECD test(s) for inherent biodegradability)

OECD Biodegradation Test:

Biodegradation	Exposure Time	Method
>90%	5.5 d	OECD 302B Test

*Data for Component: **Diethylmethylbenzendiamine (Diethyltoluenediamine Detda)***

Movement and Partitioning: Bioconcentration potential is low (BCF <100 or log Pow <3) Potential for mobility in soil is low (Koc between 500 and 2000). Given its low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Henry's Law Constant H: 2.62E-09 atm*m3/mole;
25°C Estimated

Partition coefficient, n-octanol/water (log Pow): 3.21 Estimated

Partition coefficient, soil organic carbon/water (Koc): 390 Estimated

Bioconcentration factor (BCF): 10, Estimated

Persistence and Degradability: Material is not readily biodegradable according to OECD/EC guidelines.

OECD Biodegradation Test:

MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

Biodegradation	Exposure Time	Method
>1%	28 d	OECD 301B Test

*Data for Component: **Dibutyltin dialaurate***

Movement and Partitioning: Bioconcentration potential is moderate (BCF less than 100 or log Pow between 3 and 5) Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient, n-octanol/water (log Pow): 3.12 Measured

Partition coefficient, soil organic carbon/water (Koc): 1,187 Measured

Bioconcentration factor (BCF): 120, Common carp (Cyprinus carpio) Measured

Persistence and Degradability: Material is not readily biodegradable according to OECD/EC guidelines.

Ecotoxicity:

*Data for Component: **Variable mixture of various polyether polyols***

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50 greater than 100 mg/L in most sensitive species)

*Data for Component: **Diisononyl phthalate***

Not expected to be acutely toxic to aquatic organisms

*Data for Component: **Diethylmethylbenzendiamine (Diethyltoluenediamine Detda)***

Material is very toxic to aquatic organisms (LC50/EC50/IC50 greater than 100 mg/L in most sensitive species)

Fish acute and prolonged toxicity: LC50, golden orfe (leuciscus idus) 48h 194mg/l

Aquatic invertebrate acute toxicity: EC50, water flea Daphnea magna 48h immobilization <1 mg/l

Toxicity to micro oreganisms EC10 bacteria Growth inhibition 16h 170mg/l

*Data for Component: **Dibutyltin dialaurate***

Material is toxic to aquatic organisms (LC50/EC50/IC50 greater than 100 mg/L in most sensitive species)

Fish acute and prolonged toxicity: LC50, golden orfe (leuciscus idus) 48h 2mh/l

Aquatic invertebrate acute toxicity: EC50, water flea Daphnea magna 48h immobilization 2.28 mg/l

MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

13. DISPOSAL

This product when being disposed of in its unused and uncontaminated state should be treated as hazardous waste according to EC Directive 91/689/EEC. Any disposal

practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground or not any body of water.

14. TRANSPORT INFORMATION**ROAD AND RAIL**

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: CONTAINS Diethylmethylbenzene diamine

Hazard Class: 9 ID Number: UN3082 Packing Group: PGIII

Classification: M6

Kemler Code: 90

Tremcard Number: 90GM6-III

OCEAN

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: CONTAINS Diethylmethylbenzene diamine

Hazard Class: 9 ID Number: UN3082 Packing Group: PGIII

EMS number F-A, S-F

Marine Pollutant: No

AIR

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: CONTAINS Diethylmethylbenzene diamine

Hazard Class: 9 ID Number: UN3082 Packing Group: PGIII

Cargo packing instruction: 914

Passenger Packing instruction: 914

INLAND WATERWAYS

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: CONTAINS Diethylmethylbenzene diamine

Hazard Class: 9 ID Number: UN3082 Packing Group: PGIII

Classification: M6

Kemler Code: 90

Tremcard Number: 90GM6-III

15. REGULATORY INFORMATION**European Inventory of Existing Commercial Chemical Substances (EINECS)**

The components of this product are on the EINECS inventory or are exempt from inventory.

MATERIAL SAFETY DATA SHEET

Date of Issue 15/05/2008

EC Classification and User Label Information

Hazard Symbol:

N – Dangerous for the environment

Risk Phrases:

R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases:

S61 – Avoid release to the environment. Refer to special instructions/Safety data sheets

16. OTHER INFORMATION:

Risk Phrases in the Composition Section:

R21/22	Harmful in contact with skin and if swallowed
R22	Harmful if swallowed
R36	Irritating to eyes
R38	Irritating to skin
R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed
R48/25	Toxic, danger of serious damage to health by prolonged exposure if swallowed.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R60	May impair fertility.
R61	May cause harm to the unborn child.
R68	Possible risks of irreversible effects.

Revision:

Identification Number: 1016889/3005
Issue date: 2008/05/15 Version 1.0

Footnote:

The information contained in this MSDS corresponds to our level of knowledge at the time of publication. All warranties are excluded. Our most current General Sales Conditions shall apply. Please consult the Data Sheet prior to use.