SAFETY DATA SHEET
Redux 112 with Methoxy propanol

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
Product name
Redux 112 with Methoxy propanol
Product No.
20494

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses
Epoxy resin formulation in organic solvents

1.3. Details of the supplier of the safety data sheet
Supplier
Hexcel Composites Ltd
Duxford
Cambridge
CB22 4QD
Tel: +44 (0)1223 833141
Fax: +44 (0)1223 838225
Contact Person
Duxford, Cambridge, CB22 4QD, UK ++ 44 (0)1223 833141
Industriegelände 2, A-4720 Neumarkt i.H., Austria. ++ 43 (0)7229 7720
Parc Industriel, Rue 3 Bourdons, 54, B-4840, Wulkenraedt, Belgium ++32 87 307411
Sophie-Scholl-Weg 22, 21084 Stade, Germany. ++49 4141 78 79 00
Via S. Cristoforo, 44, 21047 Sarzana, Italy. ++39 02 96709082
Polígono Ind., C/Bruselas 10-16, 28980 Parla, Madrid, Spain. ++34 91 664 49 00
Z.I. La Plaine, BP27 Dagneux, 01121 Montluel CEDEX, France. ++33 (0)4 72 25 26 27
Xiqing Economic Development Area, Tianjin, China. ++86 22 2388 9068
5th Floor, Wisma Samudra, Jalan Kontraktor U1/14, Hicom-Glenmarie Industrial Park, 40150 Shah Alam, Selangor, Malaysia. +60 3 5569 3510
SDSEUOffice@Hexcel.com

1.4. Emergency telephone number
+44 (0) 1235 239 670
To be used only for advice on chemical emergencies, spillages, fires or First Aid.

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture
Classification (1999/45/EEC)
R43. R10, R52/53, R67.

2.2. Label elements
Contains
BISPHENOL A EPOXY RESIN (MOLECULAR WT <700)

Labelling
Irritant

 Risk Phrases
R10  Flammable.
R43  May cause sensitisation by skin contact.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R67 Vapours may cause drowsiness and dizziness.
Redux 112 with Methoxy propanol

Safety Phrases

| 24  | Avoid contact with skin.   |
| 37  | Wear suitable gloves.      |
| 51  | Use only in well-ventilated areas. |
| 60  | This material and its container must be disposed of as hazardous waste. |

2.3. Other hazards
This material has not yet been assessed for the identification of PBT or vPvB substances.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

<table>
<thead>
<tr>
<th>1-METHOXY-2-PROPANOL</th>
<th>60-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.: 107-98-2</td>
<td></td>
</tr>
<tr>
<td>EC No.: 203-539-1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification (EC 1272/2008)</th>
<th>Classification (67/548/EEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 3 - H226</td>
<td>R10</td>
</tr>
<tr>
<td>STOT SE 3 - H336</td>
<td>R67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BISPHENOL A EPOXY RESIN (MOLECULAR WT &lt;700)</th>
<th>1-5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.: 25068-38-6</td>
<td></td>
</tr>
<tr>
<td>EC No.: 500-033-5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification (EC 1272/2008)</th>
<th>Classification (67/548/EEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Irrit. 2 - H315</td>
<td>Xi;R36/38, N;R51/53, R43.</td>
</tr>
<tr>
<td>Eye Irrit. 2 - H319</td>
<td></td>
</tr>
<tr>
<td>Skin Sens. 1 - H317</td>
<td></td>
</tr>
<tr>
<td>Aquatic Chronic 2 - H411</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C.I. Solvent Yellow 146</th>
<th>&lt; 1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.: 94279-65-9</td>
<td></td>
</tr>
<tr>
<td>EC No.: 304-811-3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification (EC 1272/2008)</th>
<th>Classification (67/548/EEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irrit. 2 - H319</td>
<td>Xi;R36.</td>
</tr>
<tr>
<td>Skin Sens. 1 - H317</td>
<td>N;R51/53.</td>
</tr>
<tr>
<td>Aquatic Chronic 2 - H411</td>
<td>R43.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2-METHOXYPROPAHONOL</th>
<th>&lt; 1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.: 1589-47-5</td>
<td></td>
</tr>
<tr>
<td>EC No.: 216-455-5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification (EC 1272/2008)</th>
<th>Classification (67/548/EEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 3 - H226</td>
<td>R10</td>
</tr>
<tr>
<td>Skin Irrit. 2 - H315</td>
<td>Repr. Cat. 2;R61</td>
</tr>
<tr>
<td>Eye Dam. 1 - H318</td>
<td>Xi;R37/38, R41</td>
</tr>
<tr>
<td>Repr. 1B - H360D</td>
<td></td>
</tr>
<tr>
<td>STOT SE 3 - H335</td>
<td></td>
</tr>
</tbody>
</table>
Redux 112 with Methoxy propanol

MONURON (ISO) < 1%

CAS-No.: 150-68-5 EC No.: 205-766-1

<table>
<thead>
<tr>
<th>Classification (EC 1272/2008)</th>
<th>Classification (67/548/EEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4 - H302</td>
<td>Carc. Cat. 3;R40</td>
</tr>
<tr>
<td>Carc. 2 - H351</td>
<td>Xn;R22</td>
</tr>
<tr>
<td>Aquatic Acute 1 - H400</td>
<td>N;R50/63</td>
</tr>
<tr>
<td>Aquatic Chronic 1 - H410</td>
<td>&quot;</td>
</tr>
</tbody>
</table>

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation
With any sign of respiratory distress, affected persons should be taken into fresh air, and made to rest while medical attention is sought.

Ingestion
Immediately rinse the mouth repeatedly with water, if swallowing has occurred, do not induce vomiting. If requested, give affected person sips of water. Seek medical attention immediately. If vomiting does occur do not allow the affected person to inhale their vomit. Do not give anything by mouth to an unconscious person.

Skin contact
Immediately wash the affected area with warm, soapy water then clean the skin with resin removing cream, followed by further washing with warm soapy water. Do not use solvents. If irritation persists, seek medical attention.

Eye contact
Flush with water for at least 15 minutes and seek medical attention if irritation persists.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation.
Vapours may cause drowsiness and dizziness.

Skin contact
Prolonged contact may cause redness, irritation and dry skin.
This product contains component(s) that can cause allergic contact dermatitis following skin contact with the product or vapours generated during processes using heat. The initial symptoms of allergic contact dermatitis are itching, redness, swelling, blistering, flaking and cracking.

4.3. Indication of any immediate medical attention and special treatment needed

No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media
Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products
Combustion may release oxides of carbon, nitrogen and sulphur.

Specific hazards
Refer to section 10 for further details.

5.3. Advice for firefighters

Special Fire Fighting Procedures
A fire in the vicinity poses the risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area.
Do not allow contaminated extinguishing water to enter the soil, ground water or surface waters.
Proactive equipment for fire-fighters
Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions
Prevent spillage entering drainage systems or contaminating ground water or soil; if these occur, inform local fire, water and environmental health agencies immediately.

6.3. Methods and material for containment and cleaning up
Cover/contain spillage with sand, earth, or universal binder.
Do not use combustible adsorbers such as cloth, paper, or sawdust.
Materials involved in environmental release should be disposed of in accordance with local regulations.

6.4. Reference to other sections
For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling
Avoid contact with product, use only in well ventilated areas.
Support bulk containers in electrically earthed stillages to allow controlled discharge.
When applying product, use only in approved flame-proof booths or cabinets with exhaust ventilation, particularly when spraying.
Wash at the end of each work shift and before eating, smoking and using the toilet.
Promptly remove any clothing that becomes contaminated.
Use appropriate skin cream to prevent drying of skin.
When using, do not eat, drink or smoke.

7.2. Conditions for safe storage, including any incompatibilities
Store containers, securely closed according to container label instructions. Store in approved flammable liquid store. Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)
Currently no exposure scenario has been developed.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>STD</th>
<th>TWA - 8 Hrs</th>
<th>STEL - 15 Min</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-METHOXY-2-PROPANOL</td>
<td>WEL</td>
<td>100 ppm</td>
<td>375 mg/m3</td>
<td>150 ppm</td>
</tr>
</tbody>
</table>

WEL = Workplace Exposure Limit.
Sk = Can be absorbed through skin.

8.2. Exposure controls

Protective equipment

![Protective equipment icons]

Engineering measures
Provide adequate general and local exhaust ventilation.

Respiratory equipment
If adequate local exhaust ventilation is not available, an approved respirator should be worn if volatiles from the product is possible.

Hand protection
Avoid skin contact by use of impermeable gloves when handling the product.
Redux 112 with Methoxy propanol

Eye protection
Wear approved safety spectacles, goggles or facemask.

Skin protection
Ensure forearms are protected by use of gloves with long gauntlet, disposable sleeves or long sleeve overalls.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Coloured liquid.</td>
</tr>
<tr>
<td>Colour</td>
<td>Yellow.</td>
</tr>
<tr>
<td>Odour</td>
<td>Strong. Solvent.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>119-122°C (Methoxy propanol)</td>
</tr>
<tr>
<td>Melting point (°C)</td>
<td>&lt; -55°C</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.0 g/cm3 (25°C)</td>
</tr>
<tr>
<td>Vapour density (air=1)</td>
<td>3.12 (Methoxy propanol)</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>1.33 (Methoxy propanol) kPa 20°C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>0.75 (Methoxy propanol) (Ac n-Bu=1)</td>
</tr>
<tr>
<td>pH-Value, Diluted Solution</td>
<td>7.0 (10%)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>1840 mPas (25°C)</td>
</tr>
<tr>
<td>Decomposition temperature (°C)</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

The solvent content of the product prevents the product from decomposition. If the solvent content is lost through evaporation/boiling etc., the residual material has the ability to decompose if exposed to elevated temperature (>200°C).

Odour Threshold, Lower
It is not relevant as there is no toxic effect.

Odour Threshold, Upper
It is not relevant as there is no toxic effect.

Flash point
29°C Sh CC (Setaflash closed cup).

Auto Ignition Temperature (°C)
Not available.

The mixture has not been tested to determine autoignition temperature. The lowest autoignition temperature of an individual component contained in the mixture is 270°C (Methoxy propanol). Use of the product under recommended conditions and standard atmospheric pressure will not result in the autoignition temperature being reached.

Flammability Limit - Lower(%) | 1.5 % (V) (Methoxy propanol) |
Flammability Limit - Upper(%) | 13.7 % (V) (Methoxy propanol) |
Partition Coefficient (N-Octanol/Water) | log Pow 0.37 (Methoxy propanol) |

Explosive properties
The mixture does not meet the criteria for explosive in accordance with CLP Regulation.

Oxidising properties
Not applicable.
The mixture does not meet the criteria for oxidiser in accordance with the CLP Regulation.

Comments
The indicated values do not necessarily correspond to the product specification. Please refer to the technical data sheet for specification data.

9.2. Other information

Volatile Organic Compound (VOC) 845 g/litre
The value provided is a guideline based on a calculation method using the best available data. The calculation method covers the definition of VOC provided by EC Directive 1999/13/EC (Solvents Emissions Directive).
10.1. Reactivity
Refer to section 10.3 for further details.

10.2. Chemical stability
Stable under recommended storage temperature as stated in product literature.

10.3. Possibility of hazardous reactions
The product contains solvent. If conditions exist whereby the solvent is lost i.e. through heating/evaporation, the product, as an un-solvated catalysed resin, may produce an uncontrolled exothermic reaction when exposed to elevated temperatures.

10.4. Conditions to avoid
Do not handle or use in presence of ignition sources (incandescent flame, hot sources, sparks from unprotected electrical apparatus etc.,). Avoid risk of electrostatic discharges.

10.5. Incompatible materials

Materials To Avoid
Avoid contact with strong acids and alkalis and oxidising materials.

10.6. Hazardous decomposition products
Thermal decomposition and burning may release oxides of carbon, nitrogen and sulphur. The composition of gases/vapours/by-products generated during decomposition will vary depending on temperature conditions, temperature rate of rise and the presence of other chemicals in the vicinity that may react with the product. Gases/vapours/by-products should be regarded as toxic.

11.1. Information on toxicological effects

Toxicological information
Toxicological studies on the mixture are not available.

Inhalation
Vapours may cause drowsiness and dizziness.

Skin contact
May cause sensitisation by skin contact.

12.1. Toxicity
Ecotoxicological studies at the mixture are not available. Please find below the ecotoxicological data available to us for the components.

Acute Toxicity - Fish
LC50 96 hours 3.3 (Monuron) mg/l Freshwater fish
Refer to Section 3.2 for composition percentages.
LC50 96 hours 1.6 (C.I. solvent Yellow 146) mg/l Onchorhynchus mykiss (Rainbow trout)
Refer to Section 3.2 for composition percentages.

12.2. Persistence and degradability

Degradability
The degradability of the product has not been stated.

12.3. Bioaccumulative potential

Partition coefficient
log Pow 0.37 (Methoxy propanol)
Refer to Section 3.2 for composition percentages.

12.4. Mobility in soil
Redux 112 with Methoxy propanol

Mobility:
Do not allow to escape into waterways, waste water or soil

12.5. Results of PBT and vPvB assessment
This material has not yet been assessed for the identification of PBT or vPvB substances.

12.6. Other adverse effects
None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Dispose of waste material in approved waste solvent containers. Do not discharge into drains, ground water or soil.
Dispose of by high temperature incineration in an approved plant.
Do not re-use any containers contaminated with product for any purpose.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number

UN No. (ADR/RID/ADN) UN1866
UN No. (IMDG) UN1866
UN No. (ICAO) UN1866

14.2. UN proper shipping name
Proper Shipping Name Resin solution

14.3. Transport hazard class(es)

ADR/RID/ADN Class Class 3
IMDG Class Class 3
ICAO Class/Division Class 3

Transport Labels

14.4. Packing group

ADR/RID/ADN Packing group III
IMDG Packing group III
ICAO Packing group III

14.5. Environmental hazards
Environmentally Hazardous Substance/Marine Pollutant
No.

14.6. Special precautions for user

EMS F-E, S-E
Hazard No. (ADR) 30 Flammable liquid (flash-point between 23°C and 60°C, inclusive) or flammable liquid or solid in the molten state with a flash-point above 60°C, heated to a temperature equal to or above its flash-point, or self heating liquid.
Redux 112 with Methoxy propanol

Tunnel Restriction Code (D/E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Product not transported in bulk.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Legislation
This product has been classified in accordance with Dangerous Substances Directive (67/548/EEC) and Dangerous Preparations Directive (1999/45/EC).

15.2. Chemical Safety Assessment
Currently Chemical Safety Assessments for components of this mixture have not been communicated.

SECTION 16: OTHER INFORMATION

General information
This safety data sheet has been written in accordance with the requirements of the Commission Regulation (EC) No 453/2010 of 20 May 2010. This new format supersedes previous revisions of this safety data sheet and will commence with Revision 0. Any future amendments will be given incremental revision numbers.

Revision Comments
NOTE: Lines within the margin indicate significant changes from the previous revision.

Issued By European Product Safety department.
Revision Date 2012-11-06
Revision 0
Supersedes date 2009-05-18

Risk Phrases In Full
R10 Flammable.
R22 Harmful if swallowed.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R36/38 Irritating to eyes and skin.
R36 Irritating to eyes.
R37/38 Irritating to respiratory system and skin.
R40 Limited evidence of a carcinogenic effect.
R61 May cause harm to the unborn child.
R43 May cause sensitisation by skin contact.
R41 Risk of serious damage to eyes.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R67 Vapours may cause drowsiness and dizziness.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Hazard Statements In Full
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H360D May damage the unborn child.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.
Disclaimer

The product should be used in accordance with good industrial hygiene practice and compliance with any legal requirements. All information has been compiled with due diligence and is based on the present state of our knowledge. It is intended to describe the product from a point of view of safety and should not therefore be construed as guaranteeing any specific property. All products are supplied subject to our Standard Conditions of Sale which contains limitations on liability.