MOMENTIVE™

Safety Data Sheet

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

EPIKOTE# Resin MGS RIMR 135 hobbock 30KG

Revision Date 08-MAR-2012

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name EPIKOTE# Resin MGS RIMR 135 hobbock 30KG

SDS Number 16S-00300

Product Type Epoxy Resin

1.2. Relevant identified uses of the substance or mixture and uses advised against

Product use Epoxy Resin Systems

1.3. Details of the supplier of the safety data sheet

Manufacturer, importer, supplier : Momentive Specialty Chemicals B.V.
Seattleweg 17
3195 ND Pernis - Rotterdam
The Netherlands

Contact person : 4information@momentive.com

Telephone : **General Information:**
+31 6 52 511079

1.4. Emergency telephone number

: **Emergency telephone:**
CARECHEM24
+44(0)1235 239 670

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 1999/45/EC [DPD]

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Xi, R36/38
R43
N, R51/53

Human health hazards : Irritating to eyes and skin. May cause sensitization by skin contact.

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

See section 16 for the full text of the R-phrases declared above

2.2. Label elements

Symbol(s) :

Irritant

Dangerous for the environment.

Risk phrases : R36/38 - Irritating to eyes and skin.
R43 - May cause sensitization by skin contact.
R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases : S23 -Do not breathe gas/fumes/vapor/spray.
S24 -Avoid contact with skin.
S26 -In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37 -Wear suitable gloves.
S60 -This material and its container must be disposed of as hazardous waste.
S61 -Avoid release to the environment. Refer to special instructions/safety data sheet.

Contains : reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight <= 700), 1,6-bis(2,3-epoxypropoxy)hexane,

Product use : Industrial applications

2.3. Other hazards

Based on the substance information, the mixture is not expected to meet the criteria for PBT/vPvB.

SECTION 3: Composition/information on ingredients

Substance/mixture : Preparation

Ingredient name	REG # /CAS #/EC #	Classification		%
		Symbol(s)/Hazard Class and Category Code(s)	R-Phrases /Hazard statement Code(s)	
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	01-2119456619-26/ 25068-38-6/ 500-033-5	Xi; N;	Xi; R36/38 R43 N; R51 R53	70 - 90
		Aquatic Chronic 2 Skin Sens. 1 Skin Corr./Irrit. 2 Eye Dam./Irrit. 2	H411 H317 H315 H319	
1,6-bis(2,3-epoxypropoxy)hexane	01-2119463471-41/ 16096-31-4/ 240-260-4	Xi;	R52/53 R43 Xi; R36/38	15 - 20
		Aquatic Chronic 3 Eye Dam./Irrit. 2 Skin Corr./Irrit. 2 Skin Sens. 1	H412 H319 H315 H317	

See Section 16 for the full text of the H statements and R phrases declared above.

SECTION 4: First aid measures

4.1. Description of first aid measures

First aid measures

Inhalation : Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately.

Ingestion : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

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

Over-exposure signs/symptoms

Inhalation : No specific data.

Ingestion : No specific data.

Skin : Adverse symptoms may include the following: irritation, redness,

Eyes : Adverse symptoms may include the following: irritation, watering, redness,

See section 11 for more detailed information on health effects and symptoms.

4.3. Indication of immediate medical attention and special treatment needed

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Protection of first aid personnel : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

5.2. Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials: carbon dioxide, carbon monoxide,

5.3. Special protective actions for fire-fighters

Special precautions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. This material is toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3. Methods and material for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Refer to special instructions/safety data sheet. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

7.2. Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Packaging materials
Recommended : Use original container.

Specific uses : Epoxy Resin Systems

7.3. Specific end use(s)

Not applicable.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limit values

Ingredient name	Occupational exposure limits
Europe	
No exposure limit value known.	

Sweden

No exposure limit value known.

Denmark
No exposure limit value known.

Norway
No exposure limit value known.

France
No exposure limit value known.

Netherlands
No exposure limit value known.

Germany
No exposure limit value known.

Finland
No exposure limit value known.

United Kingdom (UK)
No exposure limit value known.

Austria
No exposure limit value known.

Switzerland
No exposure limit value known.

Belgium
No exposure limit value known.

Spain
No exposure limit value known.

Turkey
No exposure limit value known.

Czech Republic
No exposure limit value known.

Ireland
No exposure limit value known.

Italy
No exposure limit value known.

Estonia
No exposure limit value known.

Lithuania
No exposure limit value known.

Slovakia
No exposure limit value known.

Hungary
No exposure limit value known.

Poland
No exposure limit value known.

Slovenia
No exposure limit value known.

Latvia
No exposure limit value known.

Greece
No exposure limit value known.

Portugal
No exposure limit value known.

Bulgaria
No exposure limit value known.

Romania
No exposure limit value known.

Derived No-Effect Levels' (DNEL's) and Predicted No-Effect Concentrations' (PNEC's)

Explanatory note:
REACH requires manufacturers and importers to establish and report 'Derived No-Effect Levels' (DNEL's) for humans by inhalation, ingestion and dermal routes of exposure and 'Predicted No-Effect Concentrations' (PNEC's) for environmental exposure. DNEL's and PNEC's are established by the registrant without an official consultation process, and are not intended to be directly used for setting workplace or general population exposure limits. They are primarily used as input values in running Quantitative Risk Assessment models (like the ECETOC-TRA model).

Due to differences in calculation methodology the DNEL will tend to be lower (sometimes significantly) than any corresponding health-based OEL for that chemical substance. Further although DNEL's (and PNEC's) are an indication for setting risk reduction measures, it should be recognized that these limits do not have the same regulatory application as officially endorsed governmental OEL's.

DNELs

Ingredient name	Exposure /Effects	DNELs	Population
reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight < 700)			
	Short term Dermal/Systemic	8.3 mg/kg bw/day	Workers
	Short term Inhalation/Systemic	12.3 mg/m³	Workers
	Long term Dermal/Systemic	8.3 mg/kg bw/day	Workers
	Long term Inhalation/Systemic	12.3 mg/m³	Workers
	Short term Dermal/Systemic	3.6 mg/kg bw/day	General
	Short term Inhalation/Systemic	0.75 mg/m³	General
	Short term Oral/Systemic	0.75 mg/kg bw/day	General
	Long term Dermal/Systemic	3.6 mg/kg bw/day	General
	Long term Inhalation/Systemic	0.75 mg/m³	General
	Long term Oral/Systemic	0.75 mg/kg bw/day	General
1,6-bis(2,3-epoxypropoxy)hexane			
	Long term Inhalation/Systemic	4.9 mg/m³	Workers
	Long term Dermal/Local	22.6 µg/cm²	Workers
	Long term Dermal/Systemic	2.8 mg/kg bw/day	Workers
	Long term Inhalation/Local	0.44 mg/m³	Workers
	Short term Dermal/Systemic	1.7 mg/kg bw/day	General
	Short term Inhalation/Systemic	2.9 mg/m³	General
	Short term Oral/Systemic	0.83 mg/kg	General

	bw/day	
Short term Dermal/Local	13.6 µg/cm²	General
Long term Dermal/Systemic	1.7 mg/kg bw/day	General
Long term Inhalation/Systemic	2.9 mg/m³	General
Long term Oral/Systemic	0.83 mg/kg bw/day	General
Long term Dermal/Local	13.6 µg/cm²	General
Long term Inhalation/Local	0.27 mg/m³	General

PNECs

Ingredient name	Compartment Detail	PNECs	Method Detail
reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight < 700)			
	Fresh water	3 µg/l	
	Marine	0.3 µg/l	
	Sewage Treatment Plant	10 mg/l	
	Fresh water sediment	0.5 mg/kg dwt	
	Marine water sediment	0.5 mg/kg dwt	
	Sediment	0.05 mg/kg dwt	
	Intermittent Releases	0.013 mg/l	
1,6-bis(2,3-epoxypropoxy)hexane			
	Fresh water	0.0115 mg/l	
	Marine	1.15 µg/l	
	Marine water sediment	0.283 mg/kg dwt	
	Fresh water sediment	0.283 mg/kg dwt	
	Intermittent Releases	0.115 mg/l	

8.2. Exposure controls

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Occupational exposure controls : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection	:	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hand protection	:	- Nitrile rubber glovesChemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. - Nitrile rubber gloves
Eye protection	:	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
Skin protection	:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Environmental exposure controls	:	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance		
Physical state	:	Liquid
Color	:	Yellow
Odor	:	characteristic.
Odor threshold	:	Not determined
pH	:	Not determined
Initial boiling point and boiling range	:	Greater than 200 ℃ (392 ℉)
Flash point	:	Greater than 200 ℃ (392 ℉)
Evaporation rate	:	Not determined
Flammability	:	Not determined
Explosion limits		
Upper:	:	Not determined
Lower:	:	Not determined
Vapor pressure	:	Not determined
Vapor density	:	Not determined
Relative density	:	Not determined
Solubility	:	Insoluble
Partition coefficient: n-octanol/water	:	Not determined
Auto-ignition temperature	:	Not determined
Decomposition temperature	:	Not determined
Viscosity	:	Kinematic-Not determined Dynamic- 800 - 1,100 mPa·s @25 ℃ (77 ℉) DIN 53015
Explosive properties	:	Not determined
Oxidising properties	:	Not determined

9.2. Other information

Not applicable.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions.

10.2. Chemical stability

The product is stable.

10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4. Conditions to avoid

Avoid release to the environment. Refer to special instructions/safety data sheet.

10.5. Incompatible materials

No specific data.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

Summary of health effects based on the conventional method of Directive 1999/45/EC
Irritating to eyes and skin. May cause sensitization by skin contact.

11.1. Information on toxicological effects

EPIKOTE™ Resin MGS RIMR 135

Acute toxicity

Oral
No applicable toxicity data.

Dermal
No applicable toxicity data.

Inhalation
No applicable toxicity data.

Other routes
No applicable toxicity data.

Irritation/Corrosion
No applicable toxicity data.

Skin sensitization
No applicable toxicity data.

Respiratory sensitization
No applicable toxicity data.

Repeated Dose Toxicity

No applicable toxicity data.

Carcinogenicity
No applicable toxicity data.

Mutagenicity
No applicable toxicity data.

Toxic to Reproduction
No applicable toxicity data.

reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight <= 700)

Acute toxicity

Oral
LD50: Rat 30,000 mg/kg;
Not acutely toxic in multiple mouse and rat studies, LD50 > 2000 mg/kg of body weight.

Dermal
LD50: Rat > 2,000 mg/kg;
In a rat OECD no. 402 study the dermal LD50 was > 2000 mg/kg. In multiple rabbit acute dermal studies the LD50 was > 2000 mg/kg. One rabbit study reported an LD50 value of 23 grams/kg.

Inhalation
No applicable toxicity data. No known significant effects or critical hazards.
Due to the very low vapor pressure, saturated atmosphere = 0.008 ppb, meaningful acute inhalation studies could not be conducted.

Other routes
No applicable toxicity data. No known significant effects or critical hazards.

Skin corrosion/irritation
In an OECD No. 404 study conducted on the rabbit with a 4 hr occlusive exposure scores for erythema and oedema were minimal. Therefore, BADGE is not a skin irritant. In other studies conducted with the rabbit a 4 hr occlusive exposure was used. Maximum erythema and oedema scores observed under these extreme conditions were 1.5-2 and 1-1.5 respectively.

Serious eye damage/irritation
The results of an OECD No. 405 GLP study conducted in 2007 reported a mean maximum irritation score of 1.7. Therefore BADGE was not an eye irritant in this study. The results of multiple older non-guideline studies support this finding.

Skin sensitization
In an OECD No. 429 mouse LLNA study the estimated EC3 was a concentration of 5.7% suggesting that BADGE is a moderate skin sensitizer in this test system. In an OECD No. 406 guinea pig Maximization study BADGE induced positive dermal reaction in 100% of the test animals at a 50% concentration challenge dose. Therefore, BADGE is an "Extreme" skin sensitizer under the conditions of this study. BADGE was also positive for skin sensitization in an OECD No. 406 guinea pig Buehler method study.

Respiratory sensitization
No applicable toxicity data. No known significant effects or critical hazards.

Germ cell mutagenicity
BADGE induced gene-mutation in Ames/Salmonella tester strains TA1535 and TA100 in multiple studies. Generally, mutagenic activity was greater without liver S9 metabolic activation. Induced gene-mutation in L5178Y mouse lymphoma cells. Induced gene-mutation and chromosome damage in Chinese hamster V79 cells. Induced cell transformation in Syrian hamster BHK cells based on clonal growth in soft agar.Did not induce evidence of chromosome damage in a mouse

dominant lethal oral gavage study conducted up to a high dose level of 10 grams/kg and in a mouse micronucleus test conducted up to a high dose of 5000 mg/kg. Negative in a male mouse spermatocyte cytogenetic assay with treatment for 5 days by oral gavage up to a high dose of 3000 mg/kg. Did not induce an increase in the frequency of chromosome damage in a Chinese hamster bone marrow cytogenetic test by oral gavage up to a high dose of 3300 mg/kg. Failed to induce an increase of DNA strand breaks in rat liver cells following oral gavage treatment with 500 mg/kg as measured by alkaline elution.

Carcinogenicity
In a rat oral gavage OECD no. 453 study there was no evidence of carcinogenicity up to the high dose level of 100 mg/kg/day. OECD Test Guideline no. 453 dermal exposure studies were conducted on male mice and female rats. No evidence of carcinogenicity was observed in male mice treated up to the high dose of 100 mg/kg/day and female rats exposed up to a high dose level of 1000 mg/kg/day.

Reproductive toxicity
No adverse reproductive effects were observed in an O.E.C.D. Test Guideline no. 416 GLP two-generation rat oral gavage study conducted up to a high dose level of 750 mg/kg/day that resulted in adult body weight decrements.

Developmental / Teratogenicity
BADGE did not induce any evidence of development toxicity in rats and rabbits exposed by oral gavage or in rabbits treated by the dermal route in OECD Test Guideline no. 414 GLP studies. The oral gavage studies were conducted up to a high dose level of 180 mg/kg/day that produced maternal toxicity base on decreased body weight gain. The rabbit dermal study was conduced up to a high dose of 300 mg/kg/day that induced maternal toxicity based on reduced body weight gain.

STOT-single exposure
No applicable toxicity data. No known significant effects or critical hazards.

STOT-repeated exposure
In a rat OECD test guideline no. 408 sub chronic oral study the NOAEL was 50 mg/kg/day. Significant dose-related evidence of hematotoxicity was observed at doses of 250 & 1000 mg/kg/day. There was a significant increase of blood urea nitrogen at 250 & 1000 mg/kg/day and slight histopathological evidence of kidney envolvement at the high dose of 1000 mg/kg/day. Histological examination identified slight to moderate degeneration of the seminiferous tubules at 1000 mg/kg/day and possible uterine effects at the same dose. The NOAEL for a rat 90-day dermal (5 days/week) study was 100 mg/kg/day due to body weight decrements at 1000 mg/kg/day. Based on chronic dermatitis the LOAEL for adverse dermal effects in this study was 10 mg/kg/day. No evidence of neurotoxicity was observed in a rat 90-day dermal OECD Test Guideline no. 411 GLP study conducted up to a high dose level of 1000 mg/kg/day with FOB, motor activity and neurohistopathological assessments.

Aspiration hazard
No applicable toxicity data. No known significant effects or critical hazards.

Other information
No applicable toxicity data. No known significant effects or critical hazards.

1,6-bis(2,3-epoxypropoxy)hexane

Acute toxicity

Oral
LD50: Rat 2,900 mg/kg;
1,6 -Hexanediol Diglycidylether (HDDGE) was accessed for acute oral toxicity in Sprague-Dawley rats by an O.E.C.D. 401 Testing Guideline study with GLP compliance. The acute oral median lethal dose (LD50) and 95% confidence limits for 1,6-hexanediol diglycidyl ether in Sprague-Dawley rats was 3741 (3341-4085) mg/kg body weight. This degree of oral toxicity does not require classification or labelling according to the criteria of the Commission of the European Communities (Annex VI of Council Directive 67/548/EEC).Therefore,

Classification and Labeling for acute oral toxicity is not required.This degree of oral toxicity does not require classification or labelling according to the criteria of the Commission of the European Communities (Annex VI of Council Directive 67/548/EEC).

Dermal
LD50: Rat > 2,000 mg/kg;
1,6-Hexanediol Diglycidylether (HDDGE) was evaluated for acute dermal toxicity potential to rats in an O.E.C.D. 402 Testing Guideline study conducted with GLP compliance. No mortalities were observed in the study. The no observed effect level (NOEL) of the test material, 1,6-Hexanediol Diglycidylether , in the Sprague-Dawley strain rat was found to be greater than 2000 mg/kg bodyweight.
Therefore, Classification and Labeling for acute dermal exposure is not required.

Inhalation
No applicable toxicity data. No known significant effects or critical hazards.
1,6-Hexanediol Diglycidylether (HDDGE) was accessed for acute inhalation toxicity potential by an O.E.C.D. 433 Testing Guideline study conducted with GLP compliance. The animals were exposed by whole body inhalation to primarily vapor phase HDDGE. The highest attainable concentration of HDDGE, 0.035 mg/l of air (3.7 ppm), induced no mortalities and was not toxic to rats after a single, 4-hour, whole-body exposure.

Other routes
No applicable toxicity data. No known significant effects or critical hazards.

Skin corrosion/irritation
1,6-Hexanediol Diglycidylether (HDDGE) was evaluated for skin irritation/corrosion potential in a non-guideline, occlusive, repeated-application study in rabbits. The repeated exposure was for 24 hr with occlusion for 5 consecutive followed by a 5 day recovery period. Under these extreme conditions of treatment 1,6 -Hexanediol Diglycidylether (HDDGE) was found to cause extreme irritation with corrosion when applied to intact and abraded rabbit skin. The calculated primary irritation index was 6.4. Due to the extreme non-guideline, occlusive repeated dermal exposure, the findings from this study should not be used for Classification and Labeling purposes.

Serious eye damage/irritation
1,6-Hexanediol Diglycidylether (HDDGE) was accessed for the potential to be a rabbit eye irritant in a Draize method study. Three of the six animals had their treated eye washed with physiological saline approximately 30 seconds following the initiation of treatment. Based on conjunctival irritation scores, 1,6-Hexanediol Diglycidylether is a rabbit eye irritant for Classification and Labeling purposes. However, washing of treated eyes with physiological saline prevented significant irritation.

Skin sensitization
1,6-Hexanediol Diglycidylether (HDDGE) was evaluated for skin sensitizing potential in a mouse LLNA O.E.C.D. 429 Testing Guideline study with GLP compliance including test substance stability and concentration verification. HDDGE was found to be a dermal sensitizer in the mouse LLNA assay. The authors concluded that the Estimated Concentration 3 for HDDGE based on DPM data was 1.9% wt/v and judged HDDGE to have moderate dermal sensitizing potential based on the outcome of this study. The Worker Dermal DMEL/DNEL based on the results of this study was estimated to be 22.6 ug/cm2.

Respiratory sensitization
No applicable toxicity data. No known significant effects or critical hazards.

Germ cell mutagenicity
1,6-Hexanediol Diglycidylether (HDDGE) was evaluated for mutagenic potential in an O.E.C.D. bacterial mutation 471 Testing Guideline study with GLP compliance. Dose-related increases of the mutant frequency were observed in tester strains TA 1535, TA 1538 and TA 100. HDDGE was mutagenic to strains TA 1535 and TA 100 with and without rat liver derived S9 metabolic activation

preparation. Therefore, under the experimental conditions reported, 1,6-Hexanediol Diglycidylether did induce point mutations by base pair changes (or frameshifts in strain TA 1538) in the genome of the strains used and HDDGE is considered to be mutagenic in this Salmonella typhimurium reverse mutation assay.
1,6-Hexanediol Diglycidylether (HDDGE) was accessed for the potential to induce repairable DNA damage in an in vivo/in vitro rat hepatocyte O.E.C.D. 486 UDS Testing Guideline study with GLP compliance. HDDGE was tested up to a high oral dose of 2000 mg/kg of body weight.
1,6-Hexanediol Diglycidylether (HDDGE) did not induce evidence of repairable DNA damage in hepatocytes following oral treatment with up to 2000 mg/kg of body weight. Therefore, HDDGE is not genotoxic under the conditions of the study.

Carcinogenicity
In accordance with Column 2 of REACH, Annex X, the test (required in Section 8.9.1) does not need to be conducted based on the findings of the Chemical Safety Assessment. Furthermore, 1,6-Hexanediol Diglycidylether is not genotoxic in vivo and is not a Category 3 Mutagen.

Reproductive toxicity
An O.E.C.D. 415 "Enhanced" One-Generation Reproduction Toxicity Study or O.E.C.D. 416 Two-Generation Reproduction Toxicity Study in the rat by an appropriate route is proposed by the consortium members, subject to approval of the Test Plan by E.C.H.A.

Developmental / Teratogenicity
O.E.C.D. Test Guideline 414 Developmental studies in the rat and rabbit by an appropriate route are proposed by the consortium members as per RIP 3.3. Chapter R.7A, Section R.7.6.6.4. Elements of ITS, subject to approval of the Test Plan by E.C.H.A.

STOT-single exposure
No applicable toxicity data. No known significant effects or critical hazards.

STOT-repeated exposure
An O.E.C.D. Testing Guideline No 422 study was conducted at the oral gavage dose level of 1,6-Hexanediol Diglycidylether (HDDGE) of 0, 50, 200 and 500 mg/kg/day with GLP compliance. No adverse reproductive effects were observed in this study. Therefore, the NOAEL for reproductive effects in this study is > 500 mg/kg/day. The adult animal NOAEL is judged to be 200 mg/kg/day based on high dose level body weight decrements, reduced feed consumption, significantly reduced female rat WBC counts and possible liver, kidney and fore stomach effects.Repeated dose toxicity: dermal As per REACH Annex IX, Section 8.6.2. a 90-day, rat subchronic O.E.C.D. Testing Guideline study by the appropriate route of administration is proposed by the consortium members, subject to approval of the Test Plan by E.C.H.A.Repeated dose toxicity: inhalation (supporting study)
The repeated-dose inhalation toxicity of 1,6 -Hexanediol Diglycidylether (HDDGE) was examined in a 28 -day rat whole body vapor inhalation study conducted according to O.E.C.D. Testing Guideline No. 412 with GLP compliance. Exposure of rats to 1, 4, or 16 ug/l HDDGE for 4 weeks (5 days/week) did not have any adverse effect on body weight, clinical sign, hematologic or clinical chemical parameters or gross pathology. An increase in adrenal weights in rats exposed to 16 ug/l HDDGE was unlikely to be of toxicological significance because of the absence of microscopic changes in the adrenals. The only treatment-related microscopic changes were minimal inflammation in the vestibule of the nose and minimal, focal changes in the larynx of rats exposed to 16 ug/l HDDGE for 4 weeks. This is characteristic of a mild irritant. Therefore, the systemic NOAEL for this study is > 16 mg/m3 (1.8 ppm). The results from this study demonstrating local, portal-of-entry, nasal tract irritation are appropriate for the derivation of both worker and general population long-term local (irritation) DNELS.

Aspiration hazard
No applicable toxicity data. No known significant effects or critical hazards.

Other information
No applicable toxicity data. No known significant effects or critical hazards.

SECTION 12: Ecological information

Summary of environmental hazards based on the conventional method of Directive 1999/45/EC

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

12.1. Toxicity

EPIKOTE™ Resin MGS RIMR 135

No applicable toxicity data.

reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight <= 700)

FISH - The acute 96 hr static exposure LC50 for trout based on the results of OECD No. 203 studies is 1.3 mg/L.Daphnia - The acute 48 hr acute static exposure EC50 value for Daphnia based on the outcome of OECD No. 202 studies is 2.1 mg/L. A NOEC of 0.3 mg/L was observed in a Daphnia 21-day semi-static OECD No. 211 Reproduction study. Daphnia survival, growth and reproduction were significantly reduced at concentrations of 1 mg/L and higher.Algae- The 72 hr algal LC50 value is > 11 mg/L.The activated sewage sludge respiration inhibition 3 hr EC50 value based on an EC test method was > 100 mg/L. The growth inhibitory concentration for Pseudomonas in an 18 hr static exposure study was > 42.6 mg/L.

1,6-bis(2,3-epoxypropoxy)hexane

Fresh water LC50: 30 mg/l/3 d Rainbow trout,donaldson trout
Fresh water EC50: 67 mg/l/1 d Water flea
Fresh water EC50: 47 mg/l/2 d Water flea
Fresh water LC50: 23.1 mg/l/2 d Algae
Fresh water IC50: > 100 mg/l/28 d Soil organisms

The acute toxicity of 1,6 -Hexanediol diglycidylether to rainbow trout was determined in an O.E.C.D. Testing Guideline 203 study conducted under the GLP regulations with concentration and stability verification. The estimated 96 hr LC50 value for 1,6-Hexanediol diglycidylether to rainbow trout was 30 mg/L with 95% Confidence Limits of 25-36 mg/L.When Daphnia magna was exposed to 1,6 -Hexanediol diglycidylehter in a O.E.C.D. Testing Guideline 202 GLP study the estimated EC50 values at 24 and 48 hr were 67 (47 -96) and 47 (39 -57) mg/L respectively.1,6 -Hexanediol Diglycidylether (HDDGE) was evaluated in an O.E.C.D. Testing Guideline 209 Activated Sludge Respiration Inhibition Test with GLP compliance. The positive control for the study, 3,5 -dichlorophenol produced an estimated IC50 value of 5.8 mg/L. The estimated IC50 value for 1,6-Hexanediol Diglycidylether (HDDGE) was > 100 mg/L. Therefore, HDDGE is non-toxic to activated sludge bacteria. Applying a total Assessment Factor of 100-fold as per E.C.H.A. guidance (RIP 3.2, Chapter R.10 Section R.10.4.2. Page 30) the PNEC microorganisms for STPs is > 1.0 mg/L.O.E.C.D.- MultiCASE QSAR model was used to estimate the acute algal LC50 value for 1,6 -Hexanediol diglycidyl. The QSAR estimated LC50 value was 23.1 mg/l for a 48 hr exposure.

12.2. Persistence and degradability

EPIKOTE™ Resin MGS RIMR 135

No data available.

reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight <= 700)

The level of biodegradation in an "enhanced" OECD 301F study was 5% within the 28 day contact period. Biodegradation reached 6 - 12 % after 28 days of contact in an OECD test guideline no. 301B study. Therefore, BADGE is not readily biodegradable under the conditions of the studies.

1,6-bis(2,3-epoxypropoxy)hexane

1,6 -Hexanediol dglycidylether was accessed for ready biodegradability in an O.E.C.D. Testing Guideline 301D Closed Bottle study. The test substance reached a level of biodegradation of approximately 47% within 28 days of treatment under the conditions of the study.

12.3. Bioaccumulative potential

EPIKOTE™ Resin MGS RIMR 135

No data available.

reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight <= 700)

The OASIS CATALOGIC QSAR estimated Bioconcentration Factor of 3 - 31 and Log Pow of 3.24 @ 25 C suggest low potential to bioaccumulate in aquatic organisms.

1,6-bis(2,3-epoxypropoxy)hexane

The QSAR program of Advanced Chemistry Developmental (ACD/Labs) Software V9.04 for Solaris (ACS SciFinder Database September 2009) estimated a Bioconcentration Factor for 1,6 -Hexanediol glycidylether of 3.57.

12.4. Mobility in soil

EPIKOTE™ Resin MGS RIMR 135

No data available.

reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight <= 700)

The KOCWIN QSAR estimated adsorption/desorption coefficient Log Koc = 2.65 suggesting moderated sorption to organic matter and limited soil mobility.

1,6-bis(2,3-epoxypropoxy)hexane

An estimation of the Log Koc for 1,6-Hexanediol Diglycidylether (HDDGE) was made by an O.E.C.D. Testing Guideline No. 121 study with GLP compliance. The Log Koc for 1,6-Hexanediol Diglycidylether (HDDGE) was approximately 2.98 suggesting low potential for adsorption to soil, sewage sludge and sediment.

12.5. Results of PBT and vPvB assessment

EPIKOTE™ Resin MGS RIMR 135

Based on the substance information, the mixture is not expected to meet the criteria for PBT/vPvB.

reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight <= 700)

Based upon a low potential to bioaccumulate and EC50/LC50 values of > 0.1 mg/L BADGE is not PBT.

1,6-bis(2,3-epoxypropoxy)hexane

A detailed analysis of the Persistence, Bioaccumulation and Toxicity has been brought together into a clear conclusion on whether 1,6 -Hexanediol dglycidylether is not a PBT/vPvB substance. 1,6 -Hexanediol dglycidylether is not readily biodegradable under the conditions of the study, however, it is unlikely to meet the P Criteria.. Applicable QSAR results show that 1,6 -Hexanediol dglycidylether is not B. The toxicity studies value is greater than the 0.1 mg/L and does not meet the T criteria. The data show that the properties of the substance do not meet the specific criteria detailed in Annex XIII and, consequently, that the substance is not considered a PBT/vPvB.

12.6. Other adverse effects

EPIKOTE™ Resin MGS RIMR 135

No known adverse effects.

reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight <= 700)

No known adverse effects.

1,6-bis(2,3-epoxypropoxy)hexane

No known adverse effects.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

SECTION 14: Transport information

Regulatory information	14.1. UN number	14.2. UN proper shipping name	14.3. Transport hazard class(es)	14.4. Packing group
ADR	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATIVES)	9	III

RID	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATIVES)	9	III
ICAO/IATA	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATIVES)	9	III
IMO/IMDG	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATIVES)	9	III

14.5. Environmental hazards

Environmentally hazardous and/or Marine Pollutant : Yes.

14.6. Special precautions for user

Not applicable.

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

Not applicable.

SECTION 15: Regulatory information

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

EU regulations

SEVESO Directive 96/82/EC	:	**Ingredient name**	**Listed**
		reaction product: bisphenol-A-(epichlorhydrin) and epoxy resin (number average molecular weight <= 700)	yes
		1,6-bis(2,3-epoxypropoxy)hexane	No.
REACH Annex XVII	:		
Biocides - Annex I to Directive 98/8/EC	:	Not listed	
Prior Informed Consent. List of chemicals subject to the international PIC procedure (Part I, II, III)	:	Not listed	
Integrated pollution prevention and control list (IPPC) - Air	:	Not listed	
Integrated pollution prevention and control list (IPPC) - Water	:	Not listed	

Germany

Hazard class for water : WGK 2, Appendix No. 4

International regulations

Chemical inventories REACH Status The substance(s) in this product has (have) been Pre-Registered and/or Registered, or are exempted from registration, according to Regulation (EC) No. 1907/2006 (REACH).
Australia inventory (AICS) All components are listed or exempted.
Canada inventory All components are listed or exempted.
Japan inventory All components are listed or exempted.
China inventory (IECSC) All components are listed or exempted.
Korea inventory All components are listed or exempted.
New Zealand Inventory (NZIoC) All components are listed or exempted.
Philippines inventory (PICCS) All components are listed or exempted.
United States inventory (TSCA 8b) All components are listed or exempted.

15.2. Chemical Safety Assessment
Chemical Safety Assessment not applicable.

SECTION 16: Other information

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Full text of abbreviated H statements :
H411 - Toxic to aquatic life with long lasting effects.
H317 - May cause an allergic skin reaction.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H412 - Harmful to aquatic life with long lasting effects.
H319 - Causes serious eye irritation.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.

Full text of classifications (CLP) :
AQUATIC TOXICITY (CHRONIC) Category 2 - H411
SKIN SENSITIZATION Category 1 - H317
SKIN CORROSION/IRRITATION Category 2 - H315
SERIOUS EYE DAMAGE/ EYE IRRITATION Category 2 - H319
AQUATIC TOXICITY (CHRONIC) Category 3 - H412
SERIOUS EYE DAMAGE/ EYE IRRITATION Category 2 - H319
SKIN CORROSION/IRRITATION Category 2 - H315
SKIN SENSITIZATION Category 1 - H317

Full text of abbreviated R phrases :
R36/38- Irritating to eyes and skin.
R43- May cause sensitization by skin contact.
R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of classification (DSD/DPD) :
Xi Irritant
N Dangerous for the environment.

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II

History
Date of printing : 06.02.2013

Date of issue/ Date of revision	**:**	08.03.2012
Date of previous issue	**:**	19.09.2011
Version	**:**	1.5

Notice to reader

The information provided herein was believed by Momentive Specialty Chemicals ("Momentive") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Momentive are subject to Momentive's terms and conditions of sale. MOMENTIVE MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY MOMENTIVE, except that the product shall conform to Momentive's specifications. Nothing contained herein constitutes an offer for the sale of any product.

A vertical bar (|) in the left margin indicates an amendment from the previous version.

This page left intentionally blank.