SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN
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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

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

1.1 Product identifier

Trade name : ARALDITE® AV 138 M-1

REACH Registration Number :

Product Registration number : HSR002670

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

Use of the Substance/Mixture : Epoxy constituents

1.3 Details of the supplier of the safety data sheet

Company : Service Chimie
Address : 5 Place de l'Eglise
77400 Saint Thibault des Vignes
France
Telephone : +33 1 64 30 89 22
Telefax : +33 1 64 30 87 49

E-mail address of person responsible for the SDS : contact@service-chimie.fr

1.4 Emergency telephone number

Emergency telephone number : EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1/800/424.9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2	H315: Causes skin irritation.
Serious eye damage, Category 1	H318: Causes serious eye damage.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
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Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:	
P280	Wear protective gloves.
P280	Wear eye protection/ face protection.
P273	Avoid release to the environment.
Response:	
P305	IF IN EYES:
P351	Rinse cautiously with water for several minutes.
P310	Immediately call a POISON CENTER or doctor/ physician.
Disposal:	
P501	Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous components which must be listed on the label:
Bisphenol A epoxy resin

bisphenol F-epoxy resin

Butanedioldiglycidyl ether

terephthalic acid diglycidylester

trimellitic acid triglycidylester

Additional Labelling:
EUH205 Contains epoxy constituents. May produce an allergic reaction.

The following percentage of the mixture consists of ingredient(s) with unknown acute oral toxicity: 2.3851 %

The following percentage of the mixture consists of ingredient(s) with unknown acute dermal toxicity: 2.3851 %

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
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The following percentage of the mixture consists of ingredient(s) with unknown acute inhalation toxicity: 2.3851 %

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 2.3851 %

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
No information available.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (%)
4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane	25068-38-6 500-033-5 01-2119456619-26	Eye Irrit. 2; H319 Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 2; H411	>= 13 - <= 30
1,4-Bis(2,3-epoxypropoxy)butane	2425-79-8 219-371-7 01-2119494060-45	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Chronic 3; H412	>= 1 - <= 3
Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	9003-36-5 500-006-8 01-2119454392-40-0001	Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 2; H411	>= 7 - <= 13
Bis(2,3-epoxypropyl) terephthalate	7195-44-0 230-565-0 01-2119909640-43-0000	Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317	>= 1 - <= 3
Tris(oxiranylmethyl) benzene-1,2,4-tricarboxylate	7237-83-4 230-638-7 01-2119912714-41-0000	Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 2; H411	>= 0.1 - <= 1

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.

If inhaled	:	Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion. If symptoms persist, call a physician.
In case of skin contact	:	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. If symptoms persist, call a physician.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	:	No data is available on the product itself.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	No data is available on the product itself.

5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.
Specific extinguishing methods	:	No data is available on the product itself.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
Enriching lives through innovation

ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Ensure adequate ventilation.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

None

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid contact with skin and eyes.
For personal protection see section 8.
Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Advice on common storage : Strong acids

Strong bases

Strong oxidizing agents

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
Enriching lives through innovation

ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
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Storage class (TRGS 510) : 10, Combustible liquids

Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
barium sulphate, natural	7727-43-7	TWA (inhalable dust)	10 mg/m3	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'., Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
		TWA (Respirable dust)	4 mg/m3	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed			

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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	'inhalable' and 'respirable'., Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
silica, amorphous, fumed, crystalline free	112945-52-5	TWA (inhalable dust)	6 mg/m3 (Silica)	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'., Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
		TWA (Respirable dust)	2.4 mg/m3 (Silica)	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'., Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3.,			

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

	Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Bisphenol A epoxy resin :
End Use: Workers
Exposure routes: Dermal
Potential health effects: Systemic effects, Short-term exposure
Value: 8.33 mg/kg bw/day
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Systemic effects, Short-term exposure
Value: 12.25 mg/m3
End Use: Workers
Exposure routes: Dermal
Potential health effects: Systemic effects, Long-term exposure
Value: 8.33 mg/kg bw/day
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Systemic effects, Long-term exposure
Value: 12.25 mg/m3
End Use: Consumers
Exposure routes: Dermal
Potential health effects: Systemic effects, Short-term exposure
Value: 3.571 mg/kg bw/day
End Use: Consumers
Exposure routes: Oral
Potential health effects: Systemic effects, Short-term exposure
Value: 0.75 mg/kg bw/day
End Use: Consumers
Exposure routes: Dermal
Potential health effects: Systemic effects, Long-term exposure
Value: 3.571 mg/kg bw/day
End Use: Consumers
Exposure routes: Oral
Potential health effects: Systemic effects, Long-term exposure
Value: 0.75 mg/kg bw/day

terephthalic acid diglycidylester :
End Use: Workers
Exposure routes: Dermal
Potential health effects: Systemic effects, Long-term exposure
Value: 2 mg/kg bw/day
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Systemic effects, Long-term exposure
Value: 14 mg/m3
End Use: Consumers
Exposure routes: Dermal
Potential health effects: Systemic effects, Long-term exposure
Value: 1 mg/kg bw/day
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Systemic effects, Long-term exposure
Value: 3.5 mg/m3
End Use: Consumers
Exposure routes: Oral

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
Enriching lives through innovation

ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

Potential health effects: Systemic effects, Long-term exposure
Value: 1 mg/kg bw/day

trimellitic acid triglycidylester : End Use: Workers
Exposure routes: Dermal
Potential health effects: Systemic effects, Long-term exposure
Value: 1.25 mg/kg bw/day
End Use: Consumers
Exposure routes: Dermal
Potential health effects: Systemic effects, Long-term exposure
Value: 0.62 mg/kg bw/day
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Systemic effects, Long-term exposure
Value: 2.18 mg/m3
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Systemic effects, Long-term exposure
Value: 8.75 mg/m3
End Use: Consumers
Exposure routes: Oral
Potential health effects: Systemic effects, Long-term exposure
Value: 0.62 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Bisphenol A epoxy resin : Fresh water
Value: 0.006 mg/lAssessment Factors

Marine water
Value: 0.0006 mg/lAssessment Factors

Freshwater - intermittent
Value: 0.018 mg/lAssessment Factors

Fresh water sediment
Value: 0.996 mg/kgEquilibrium method

Marine sediment
Value: 0.0996 mg/kgEquilibrium method

Soil
Value: 0.196 mg/kgEquilibrium method

Sewage treatment plant
Value: 10 mg/lAssessment Factors

Secondary Poisoning
Value: 11 mg/kg

terephthalic acid diglycidylester : Fresh water
Value: 0.00294 mg/lAssessment Factors

Marine water
Value: 0.00029 mg/lAssessment Factors

Freshwater - intermittent
Value: 0.0294 mg/lAssessment Factors

Sewage treatment plant

Value: 1.86 mg/lAssessment Factors

Fresh water sediment
Value: 0.00869 mg/kgEquilibrium method

Marine sediment
Value: 0.00087 mg/kgEquilibrium method

Soil
Value: 0.00553 mg/kgEquilibrium method

trimellitic acid triglycidylester : Fresh water
Value: 0.0067 mg/lAssessment Factors

Marine water
Value: 0.0067 mg/lAssessment Factors

Freshwater - intermittent
Value: 0.067 mg/lAssessment Factors

Sewage treatment plant
Value: 2.89 mg/lAssessment Factors

Sediment
Value: 0.0418 mg/kgEquilibrium method

Marine sediment
Value: 0.00418 mg/kgEquilibrium method

Soil
Value: 0.0305 mg/kgEquilibrium method

8.2 Exposure controls

Personal protective equipment

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Hand protection
Material : butyl-rubber
Break through time : > 8 h
Solvent-resistant gloves (butyl-rubber)
Nitrile rubber
Neoprene gloves
PVC
butyl-rubber
10 - 480 min
Solvent-resistant gloves (butyl-rubber)
Nitrile rubber
Neoprene gloves
PVC

Remarks : Polyvinyl alcohol or nitrile- butyl-rubber gloves The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Before removing gloves clean them with soap and water.

Skin and body protection	:	impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	:	In the case of vapour formation use a respirator with an approved filter.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	paste
Colour	:	beige
Odour	:	slight
Boiling point	:	> 200 °C
Flash point	:	110 °C Method: Information given is based on data obtained from similar substances., closed cup
Density	:	ca. 1.7 g/cm3 (25 °C)
Solubility(ies)		
Water solubility	:	insoluble (20 °C)
Decomposition temperature	:	> 200 °C
Viscosity		
Viscosity, dynamic	:	200,000 - 700,000 mPa.s (20 °C) Method: ISO 2555

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under recommended storage conditions.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Stable under recommended storage conditions. No decomposition if used as directed.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

10.4 Conditions to avoid

Conditions to avoid : No data available

10.5 Incompatible materials

10.6 Hazardous decomposition products

Carbon oxides
Burning produces noxious and toxic fumes.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Components:

Bisphenol A epoxy resin:
Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 420
Assessment: The substance or mixture has no acute oral toxicity

Butanedioldiglycidyl ether:
Acute oral toxicity : LD50 (Rat, male and female): 1,163 mg/kg
Method: OECD Test Guideline 401
GLP: yes

bisphenol F-epoxy resin:
Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 401

terephthalic acid diglycidylester:
Acute oral toxicity : LD50 (Rat, male and female): > 2,500 mg/kg
Method: OECD Test Guideline 401
GLP: yes

trimellitic acid triglycidylester:
Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Components:

Bisphenol A epoxy resin:
Acute inhalation toxicity : LC0 (Rat, male): 10 ppt
Exposure time: 5 h
Test atmosphere: vapour

Butanedioldiglycidyl ether:

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
Enriching lives through innovation

ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
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Acute inhalation toxicity : LC50 (Rat): > 2.068 mg/l
Exposure time: 6 h
Test atmosphere: dust/mist
Assessment: The component/mixture is moderately toxic after short term inhalation.

Components:

Bisphenol A epoxy resin:
Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Butanedioldiglycidyl ether:
Acute dermal toxicity : LD50 (Rat, male and female): > 2,150 mg/kg
GLP: no
Assessment: The component/mixture is moderately toxic after single contact with skin.

bisphenol F-epoxy resin:
Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

terephthalic acid diglycidylester:
Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

trimellitic acid triglycidylester:
Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation

Components:

Bisphenol A epoxy resin:
Species: Rabbit
Assessment: Mild skin irritant
Method: OECD Test Guideline 404
Result: Irritating to skin.

Butanedioldiglycidyl ether:
Species: Rabbit

SAFETY DATA SHEET
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HUNTSMAN
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Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

Method: OECD Test Guideline 404
Result: Skin irritation
GLP: yes

bisphenol F-epoxy resin:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Irritating to skin.

terephthalic acid diglycidylester:
Species: Rabbit
Assessment: Mild skin irritant
Result: Normally reversible injuries
GLP: no

trimellitic acid triglycidylester:
Species: Rabbit
Assessment: No skin irritation
Method: OECD Test Guideline 404
Result: No skin irritation
GLP: yes

Serious eye damage/eye irritation

Components:

Bisphenol A epoxy resin:
Species: Rabbit
Assessment: Mild eye irritant
Method: OECD Test Guideline 405
Result: Irritating to eyes.

Butanedioldiglycidyl ether:
Species: Rabbit
Method: OECD Test Guideline 405
Result: Irreversible effects on the eye
GLP: yes

bisphenol F-epoxy resin:
Species: Rabbit
Assessment: No eye irritation
Method: OECD Test Guideline 405
Result: No eye irritation

terephthalic acid diglycidylester:
Species: Rabbit
Assessment: Corrosive
Result: Irreversible effects on the eye
GLP: no

trimellitic acid triglycidylester:
Species: Rabbit
Assessment: Irritant
Method: OECD Test Guideline 405
Result: Normally reversible injuries
GLP: yes

Respiratory or skin sensitisation

Components:

Bisphenol A epoxy resin:
Exposure routes: Skin
Species: Mouse
Assessment: May cause sensitisation by skin contact.
Method: OECD Test Guideline 429
Result: Causes sensitisation.

Butanedioldiglycidyl ether:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.

bisphenol F-epoxy resin:
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: May cause sensitisation by skin contact.

Carboxylic acid glycidyl ester:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Causes sensitisation.

trimellitic acid triglycidylester:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Causes sensitisation.

Assessment: No data available

Germ cell mutagenicity

Components:

Bisphenol A epoxy resin:
Genotoxicity in vitro : Concentration: 0 - 25 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive

: Concentration: 0 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

Butanedioldiglycidyl ether:
Genotoxicity in vitro : Concentration: 10 - 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive
GLP: yes

: Concentration: 1 - 100 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes

bisphenol F-epoxy resin:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive

terephthalic acid diglycidylester:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive
GLP: yes

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive
GLP: no

trimellitic acid triglycidylester:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive
GLP: yes

: Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive

GLP: yes

Components:

Bisphenol A epoxy resin:

Genotoxicity in vivo : Cell type: Germ
Application Route: Oral
Method: OECD Test Guideline 478
Result: negative

Cell type: Somatic
Application Route: Oral
Dose: 0 - 5000 mg/kg
Method: OPPTS 870.5395
Result: negative

Butanedioldiglycidyl ether:

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Test species: Mouse
Cell type: Somatic
Application Route: Oral
Exposure time: 4 d
Dose: 187.5 - 750 mg/kg
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Test Type: unscheduled DNA synthesis assay
Test species: Rat
Cell type: Liver cells
Application Route: Oral
Method: OECD Test Guideline 486
Result: negative
GLP: yes

bisphenol F-epoxy resin:

Genotoxicity in vivo : Cell type: Somatic
Application Route: Oral
Exposure time: 48 h
Dose: 2000 mg/kg
Method: OECD Test Guideline 474
Result: negative

Cell type: Somatic
Application Route: Oral
Dose: 2000 mg/kg
Method: OECD Test Guideline 486
Result: negative

terephthalic acid diglycidylester:

Genotoxicity in vivo : Application Route: Oral
Method: OECD Test Guideline 483
Result: negative
GLP: yes

Application Route: Oral
Method: OECD Test Guideline 474
Result: negative
GLP: yes

trimellitic acid triglycidylester:
Genotoxicity in vivo : Application Route: Oral
Method: OECD Test Guideline 483
Result: negative
GLP: yes

Application Route: Oral
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Components:

Bisphenol A epoxy resin:
Germ cell mutagenicity-Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Butanedioldiglycidyl ether:
Germ cell mutagenicity-Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Germ cell mutagenicity-Assessment : No data available

Carcinogenicity

Components:

Bisphenol A epoxy resin:
Species: Rat, (male and female)
Application Route: Oral
Exposure time: 24 month(s)
Dose: 15 mg/kg
Frequency of Treatment: 7 days/week
Method: OECD Test Guideline 453
Result: negative

Species: Mouse, (male)
Application Route: Dermal
Exposure time: 24 month(s)
Dose: 0.1 mg/kg

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

Frequency of Treatment: 3 days/week
Method: OECD Test Guideline 453
Result: negative

Species: Rat, (female)
Application Route: Dermal
Exposure time: 24 month(s)
Dose: 1 mg/kg
Frequency of Treatment: 5 days/week
Method: OECD Test Guideline 453
Result: negative

Carcinogenicity - Assessment : No data available

Reproductive toxicity

Components:

Bisphenol A epoxy resin:
Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: >750 milligram per kilogram
General Toxicity - Parent: No-observed-effect level: 540 mg/kg body weight
General Toxicity F1: No-observed-effect level: 540 mg/kg body weight
Symptoms: No adverse effects
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

bisphenol F-epoxy resin:

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416

Components:

Bisphenol A epoxy resin:
Effects on foetal development : Species: Rabbit, female
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight
Method: Other guidelines
Result: No teratogenic effects

Species: Rabbit, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 60 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rat, female
Application Route: Oral

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

General Toxicity Maternal: No observed adverse effect level: 180 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

bisphenol F-epoxy resin:

Species: Rabbit, female
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight
Result: No teratogenic effects

Reproductive toxicity - Assessment : No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

Bisphenol A epoxy resin:
Species: Rat, male and female
No observed adverse effect level: 50 mg/kg
Application Route: Ingestion
Exposure time: 14 WeeksNumber of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
No-observed-effect level: 10 mg/kg
Application Route: Skin contact
Exposure time: 13 WeeksNumber of exposures: 5 d
Method: Subchronic toxicity

Species: Mouse, male
No observed adverse effect level: 100 mg/kg
Application Route: Skin contact
Exposure time: 13 WeeksNumber of exposures: 3 d
Method: Subchronic toxicity

Butanedioldiglycidyl ether:
Species: Rat, male and female
No observed adverse effect level: 200 mg/kg
Application Route: Ingestion
Exposure time: 28 dNumber of exposures: 7 d
Method: Subacute toxicity

bisphenol F-epoxy resin:
Species: Rat, male and female
No observed adverse effect level: 250 mg/kg
Application Route: Ingestion

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

Exposure time: 13 WeeksNumber of exposures: 7 d
Method: Subchronic toxicity

terephthalic acid diglycidylester**:**
Species: Rat, male and female
No observed adverse effect level: > 240 mg/kg
Application Route: Ingestion
Exposure time: 672 hNumber of exposures: 7 d
Method: Subacute toxicity

trimellitic acid triglycidylester**:**
Species: Rat, male
No observed adverse effect level: 150
Application Route: Ingestion
Exposure time: 672 hNumber of exposures: 7 d
Method: Subacute toxicity

Species: Rat, female
No observed adverse effect level: >= 500
Application Route: Ingestion
Exposure time: 672 hNumber of exposures: 7 d
Method: Subacute toxicity

Repeated dose toxicity - Assessment : No data available

Aspiration toxicity
No data available

Experience with human exposure
General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution
No data available

Neurological effects
No data available

Further information

Product:

Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Further information
The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 2.3851 %

Components:

Bisphenol A epoxy resin:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 1.5 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2.7 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water
Toxicity to algae	:	EC50 (Selenastrum capricornutum (green algae)): 9.4 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: EPA-660/3-75-009
Toxicity to bacteria	:	IC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.3 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 211

Butanedioldiglycidyl ether:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): 24 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 203 GLP: no

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 75 mg/l Exposure time: 24 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202 GLP: no
Toxicity to algae	:	EL50 : > 160 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes
Toxicity to bacteria	:	IC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209 GLP: no

bisphenol F-epoxy resin:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.55 mg/l Exposure time: 96 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 1.6 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202
Toxicity to algae	:	EC50 (Selenastrum capricornutum (green algae)): 1.8 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201
Toxicity to bacteria	:	IC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.3 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 211

terephthalic acid diglycidylester:

Toxicity to fish	:	LC50 : 8.8 mg/l Exposure time: 96 h Test Type: static test

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

Test substance: Fresh water
Method: OECD Test Guideline 203
GLP: no

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 81 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
GLP: no

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 2.94 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

trimellitic acid triglycidylester:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 6.7 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 21.7 mg/l
Exposure time: 48 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 27.45 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

Toxicity to bacteria : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h
Test substance: brackish water
Method: OECD Test Guideline 209
GLP: yes

12.2 Persistence and degradability

Components:

Bisphenol A epoxy resin:

Biodegradability : Inoculum: Sewage (STP effluent)
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 5 %
Exposure time: 28 d

Method: OECD Test Guideline 301F

Butanedioldiglycidyl ether:

Biodegradability : Inoculum: activated sludge
Concentration: 20 mg/l
Result: Not readily biodegradable.
Biodegradation: 43 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

bisphenol F-epoxy resin:

Biodegradability : Inoculum: activated sludge
Concentration: 3 mg/l
Result: Not readily biodegradable.
Biodegradation: ca. 0 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.E.

trimellitic acid triglycidylester:

Biodegradability : Inoculum: Fresh water
Result: Not readily biodegradable.
Biodegradation: 59 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

12.3 Bioaccumulative potential

Components:

Bisphenol A epoxy resin:

Bioaccumulation : Bioconcentration factor (BCF): 31
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3.242 (25 °C)
pH: 7.1
Method: OECD Test Guideline 117

Butanedioldiglycidyl ether:

Partition coefficient: n-octanol/water : log Pow: -0.269 (25 °C)
pH: 6.7
Method: OECD Test Guideline 117
GLP: yes

bisphenol F-epoxy resin:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 150
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 2.7 - 3.6
Method: OECD Test Guideline 117

terephthalic acid diglycidylester:

Partition coefficient: n-octanol/water : log Pow: 1.7 (25 °C)
Method: OECD Test Guideline 117
GLP: yes

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
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ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

trimellitic acid triglycidylester:
Partition coefficient: n-octanol/water : log Pow: 0.9 (25 °C)
Method: OECD Test Guideline 117
GLP: yes

12.4 Mobility in soil

Components:

Bisphenol A epoxy resin:
Distribution among environmental compartments : Koc: 445

Butanedioldiglycidyl ether:
Distribution among environmental compartments : Koc: 12.59Method: OECD Test Guideline 121

bisphenol F-epoxy resin:
Distribution among environmental compartments : Koc: 4460Method: OECD Test Guideline 121

terephthalic acid diglycidylester:
Distribution among environmental compartments : Koc: 2Method: OECD Test Guideline 121

trimellitic acid triglycidylester:
Distribution among environmental compartments : Koc: 251Method: OECD Test Guideline 121

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

Product:

Additional ecological information : Remarks: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Offer surplus and non-recyclable solutions to a licensed disposal company.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
Enriching lives through innovation

ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

IATA

14.1 UN number	:	UN 3082
14.2 UN proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (BISPHENOL A EPOXY RESIN)
14.3 Transport hazard class(es)	:	9
14.4 Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG

14.1 UN number	:	UN 3082
14.2 UN proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN)
14.3 Transport hazard class(es)	:	9
14.4 Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
14.5 Environmental hazards		
Marine pollutant	:	yes

ADR

14.1 UN number	:	UN 3082
14.2 UN proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN)
14.3 Transport hazard class(es)	:	9
14.4 Packing group	:	III
Labels	:	9
14.5 Environmental hazards		
Marine pollutant	:	no

RID

14.1 UN number	:	UN 3082
14.2 UN proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN)
14.3 Transport hazard	:	9

class(es)
14.4 Packing group : III
Labels : 9
14.5 Environmental hazards
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

The components of this product are reported in the following inventories:

CH INV	: The formulation contains substances listed on the Swiss Inventory
TSCA	: Not On TSCA Inventory
DSL	: This product contains the following components that are not on the Canadian DSL nor NDSL.
AICS	: Low volume exemption
NZIoC	: Not in compliance with the inventory
ENCS	: Low volume exemption
ISHL	: Low volume exemption
KECI	: Not in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: Low volume exemption

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HUNTSMAN
Enriching lives through innovation

ARALDITE® AV 138 M-1

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	02.09.2015	400001008566	Date of first issue: 02.09.2015

15.2 Chemical Safety Assessment

SECTION 16: Other information

Full text of H-Statements

H302	:	Harmful if swallowed.
H312	:	Harmful in contact with skin.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H332	:	Harmful if inhaled.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Chronic aquatic toxicity
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation

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