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SAFETY DATA SHEET

HUNTSMAN
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ARADUR® 5052 CH

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SECTION 1. IDENTIFICATION

Product name : ARADUR® 5052 CH

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : Non-Emergency: (800) 257-5547

E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Hardener

Restrictions on use : For industrial use only.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 3

Acute toxicity (Dermal) : Category 3

Skin corrosion : Category 1

Serious eye damage : Category 1

Skin sensitisation : Category 1

Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Liver, Kidney, Skeletal muscle, Heart)

Short-term (acute) aquatic hazard : Category 2

Chronic aquatic toxicity : Category 2

GHS label elements

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Hazard pictograms :



Signal word : Danger

Hazard statements :
H302 Harmful if swallowed.
H311 + H331 Toxic in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H373 May cause damage to organs (Liver, Kidney, Skeletal muscle, Heart) through prolonged or repeated exposure if swallowed.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements :
Prevention:
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P314 Get medical advice/ attention if you feel unwell.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Disposal:
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

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None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	6864-37-5	50 - 70
3-aminomethyl-3,5,5-trimethylcyclohexylamine	2855-13-2	30 - 50
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	1 - 5
salicylic acid	69-72-7	1 - 5

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.

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If symptoms persist, call a physician.
Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed	:	None known.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing If potential for exposure exists refer to Section 8 for specific personal protective equipment. Avoid inhalation, ingestion and contact with skin and eyes. 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.
Notes to physician	:	Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	Exercise caution when using a high volume water jet as it may scatter and spread fire
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon oxides Nitrogen oxides (NOx)
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
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.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.

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Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Neutralise with acid. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	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. Observe label precautions. Keep in properly labelled containers.
Materials to avoid	:	Do not store near acids.
Recommended storage temperature	:	36 - 104 °F / 2 - 40 °C
Further information on storage stability	:	Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection	:	General and local exhaust ventilation is recommended to

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maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Respiratory protection	:	In the case of vapour formation use a respirator with an approved filter.
Hand protection		
Remarks	:	Chemical-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. The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	Clear
Odour	:	slight
Odour Threshold	:	No data is available on the product itself.
pH	:	11 - 12 (68 °F / 20 °C) Concentration: 500 g/l
Melting point/freezing point	:	No data available
Boiling point	:	275 °F / 135 °C

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Flash point	:	230 °F / 110 °C Method: Pensky-Martens closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Flammability (liquids)	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Vapour pressure	:	< 0.012 hPa (68 °F / 20 °C)
Relative vapour density	:	No data is available on the product itself.
Relative density	:	0.93 - 0.95 (77 °F / 25 °C)
Density	:	0.93 - 0.95 g/cm3 (77 °F / 25 °C)
Solubility(ies)		
Water solubility	:	partly soluble (68 °F / 20 °C)
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	> 392 °F / > 200 °C
Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.
Viscosity		
Viscosity, dynamic	:	40 - 60 mPa.s (77 °F / 25 °C)
Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	No data is available on the product itself.
Molecular weight	:	No data available
Particle size	:	No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.

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Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	None known.
Incompatible materials	:	Strong acids Strong bases Strong oxidizing agents
Hazardous decomposition products	:	carbon dioxide carbon monoxide Nitrogen oxides (NOx)

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	Acute toxicity estimate: 658.49 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Assessment: The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations. Acute toxicity estimate: 0.7644 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: 546 mg/kg Method: Calculation method

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Acute oral toxicity	:	LD50 (Rat, male and female): 320 - 460 mg/kg Method: OECD Test Guideline 401 GLP: no Assessment: The component/mixture is moderately toxic after single ingestion.
Acute inhalation toxicity	:	LC50 (Rat, male and female): 0.42 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Assessment: The component/mixture is highly toxic after short term inhalation.
Acute dermal toxicity	:	LD50 (Rabbit, male and female): 200 - 400 mg/kg Method: OECD Test Guideline 402 GLP: no Assessment: The component/mixture is toxic after single

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contact with skin.

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Acute oral toxicity : LD50 (Rat, male): 1,030 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : (Rat, male and female): > 5.01 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: Breathing difficulties

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

2,4,6-tris(dimethylaminomethyl)phenol:

Acute oral toxicity : LD50 (Rat, male and female): 2,169 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is low toxic after single ingestion.

Acute dermal toxicity : LD50 (Rat, male): > 1 ml/kg
Assessment: The substance or mixture has no acute dermal toxicity

salicylic acid:

Acute oral toxicity : LD50 (Rat, male): 891 mg/kg
Method: OECD Test Guideline 401
GLP: no
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male): > 0.9 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

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

Skin corrosion/irritation

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Species : Rabbit

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Assessment	:	Causes burns.
Method	:	OECD Test Guideline 404
Result	:	Causes burns.
GLP	:	no

Species	:	synthetic macromolecular bio-barrier
Assessment	:	Causes burns.
Method	:	OECD Test Guideline 435
Result	:	Causes burns.
GLP	:	yes

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Species	:	Rabbit
Assessment	:	Causes burns.
Result	:	Causes burns.

2,4,6-tris(dimethylaminomethyl)phenol:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Corrosive after 1 to 4 hours of exposure

Species	:	synthetic macromolecular bio-barrier
Method	:	OECD Test Guideline 435
Result	:	Corrosive after 1 to 4 hours of exposure

salicylic acid:

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

Serious eye damage/eye irritation

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Exposure time	:	24 h
Assessment	:	Risk of serious damage to eyes.
Method	:	OECD Test Guideline 405
GLP	:	no

2,4,6-tris(dimethylaminomethyl)phenol:

Species	:	Rabbit
Result	:	Corrosive
Assessment	:	Corrosive
Method	:	Other guidelines

salicylic acid:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

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Assessment : Risk of serious damage to eyes.

Respiratory or skin sensitisation

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Test Type	:	Maximisation Test
Exposure routes	:	Skin
Species	:	Guinea pig
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	no

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

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

2,4,6-tris(dimethylaminomethyl)phenol:

Exposure routes	:	Skin
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.

salicylic acid:

Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Does not cause skin sensitisation.

Germ cell mutagenicity

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

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Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Concentration: 2 mg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Concentration: 1375 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Concentration: 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Dose: 500 mg/kg
Method: Directive 67/548/EEC, Annex V, B.12.
Result: negative

2,4,6-tris(dimethylaminomethyl)phenol:

Genotoxicity in vitro : Concentration: 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Concentration: 2500 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

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

salicylic acid:

Genotoxicity in vitro : Test Type: reverse mutation assay

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Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: sister chromatid exchange assay
Species: Mouse (male)
Cell type: Bone marrow
Application Route: Oral
Dose: 350 mg/kg
Method: OPPTS 870.5915
Result: negative

Test Type: sister chromatid exchange assay
Species: Mouse (male)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Dose: 20/50/100 mg/kg
Method: OPPTS 870.5915
Result: negative

Species: Mouse (male)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Dose: 50/100/200 mg/kg
Method: OECD Test Guideline 475
Result: negative

Species: Mouse (male)
Cell type: Bone marrow
Application Route: Oral
Dose: 350 mg/kg
Method: OECD Test Guideline 475
Result: negative

Carcinogenicity

Components:

salicylic acid:

Species : Rat, male and female
Application Route : Oral
Exposure time : 24 month(s)

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Dose	:	0,50,250,500,1000 mg/kg
Frequency of Treatment	:	7 daily
NOAEL	:	500 mg/kg bw/day
Result	:	negative
Remarks	:	Information given is based on data obtained from similar substances.

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Effects on fertility	:	Species: Rat, male and female Application Route: Oral Dose: 1.5/5/15 mg/kg bw/d General Toxicity - Parent: NOAEL: 1.5 mg/kg body weight Method: OECD Test Guideline 443 GLP: yes
Effects on foetal development	:	Test Type: Pre-natal Species: Rat, female Application Route: Oral Dose: 5, 15 and 45 mg/kg bw /day Duration of Single Treatment: 20 d Frequency of Treatment: 7 days/week General Toxicity Maternal: NOAEL: 5 mg/kg body weight Developmental Toxicity: NOAEL: 45 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects GLP: yes Test Type: Pre-natal Species: Rabbit, female Application Route: Oral Dose: 1/3/9 mg/kg bw/d Duration of Single Treatment: 23 d Frequency of Treatment: 7 days/week General Toxicity Maternal: NOAEL: 1 mg/kg body weight Developmental Toxicity: NOAEL: 9 mg/kg body weight Method: OECD Test Guideline 414 GLP: yes

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Effects on foetal development	:	Species: Rat, female Application Route: Oral Dose: 10/50/250 milligram per kilogram General Toxicity Maternal: NOEL: 50 mg/kg body weight

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Method: OECD Test Guideline 414
Result: No teratogenic effects

2,4,6-tris(dimethylaminomethyl)phenol:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Remarks: No significant adverse effects were reported

salicylic acid:

Effects on foetal development : Species: Rabbit, female
Application Route: Oral
Duration of Single Treatment: 3 - 13 d
General Toxicity Maternal: NOAEL: 125 mg/kg body weight
Developmental Toxicity: NOAEL: 250 mg/kg body weight
Method: OECD Test Guideline 414
Remarks: Information given is based on data obtained from similar substances.

STOT - single exposure

No data available

STOT - repeated exposure

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Exposure routes : Ingestion
Target Organs : Liver, Kidney, Skeletal muscle, Heart
Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Species : Rat, male and female
NOEC : 12 mg/m3
Application Route : Inhalation
Test atmosphere : vapour
Exposure time : 6 h
Number of exposures : 5 days/week
Method : OECD Test Guideline 413
GLP : yes

Species : Rat, male and female
NOAEL : 2.5 mg/kg
Application Route : oral (gavage)
Exposure time : 3 months
Number of exposures : 5 days/week
Dose : 2.5, 12, 60 mg/kg bw/day
Method : OECD Test Guideline 408
GLP : yes
Target Organs : Liver, Kidney, Skeletal muscle, Heart

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3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Species	:	Rat, male and female
NOAEL	:	60 mg/kg
Application Route	:	Ingestion
Exposure time	:	90 d
Dose	:	20, 60, 160 mg/kg
Method	:	OECD Test Guideline 408
Target Organs	:	Kidney

Species	:	Rat, male and female
NOEC	:	200 mg/m3
Application Route	:	Inhalation
Test atmosphere	:	dust/mist
Exposure time	:	216 h
Number of exposures	:	6h
Method	:	Subacute toxicity
Target Organs	:	respiratory tract irritation

2,4,6-tris(dimethylaminomethyl)phenol:

Species	:	Rat, male and female
NOEL	:	15 mg/kg
Application Route	:	Ingestion
Exposure time	:	1,032 h
Number of exposures	:	7 d
Method	:	Subacute toxicity

salicylic acid:

Species	:	Rat, male and female
NOAEL	:	50 mg/kg
Application Route	:	oral (feed)
Exposure time	:	2 yr
Number of exposures	:	7 d
Dose	:	0, 50, 250, 500, 1000 mg/kg bw
Method	:	Chronic toxicity
Remarks	:	Information given is based on data obtained from similar substances.

Species	:	Rat, female
NOEC	:	700 mg/m3
Application Route	:	inhalation (vapour)
Exposure time	:	7 h 4 Weeks
Number of exposures	:	5 days/week
Dose	:	635 mg/m3
Method	:	OECD Test Guideline 412
GLP	:	no
Remarks	:	Information given is based on data obtained from similar substances.

Aspiration toxicity

No data available

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Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Toxicity to fish	:	LC50 (Oryzias latipes (Orange-red killifish)): 22.4 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 4.57 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 7.9 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes EC10 (Pseudokirchneriella subcapitata (green algae)): 4.1 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes
Toxicity to fish (Chronic toxicity)	:	NOEC (Fish): > 1 mg/l Method: QSAR

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GLP: no
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 4 mg/l
Exposure time: 21 d
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 211
GLP: yes

Toxicity to microorganisms : EC20 (activated sludge): 160 mg/l
Exposure time: 30 min
Test Type: static test
Analytical monitoring: no
Method: ISO 8192
GLP: no

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 110 mg/l
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.1.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 23 mg/l
End point: mortality
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 37 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.3.

EC10 (Desmodesmus subspicatus (green algae)): 11.2 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.3.

Toxicity to daphnia and other aquatic invertebrates : NOEC (Daphnia magna (Water flea)): 3 mg/l
Exposure time: 21 d

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(Chronic toxicity) Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 202
Remarks: No-observed-effect level

Toxicity to microorganisms : EC10 (Pseudomonas putida): 1,120 mg/l
Exposure time: 18 h
Test Type: static test
Method: Measured

2,4,6-tris(dimethylaminomethyl)phenol:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 175 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates : LC50 (Palaeomonetes vulgaris (Grass shrimp)): 718 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no
Test substance: Marine water

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 84 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 6.25 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

salicylic acid:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 1,370 mg/l
Exposure time: 96 h
Test Type: flow-through test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 203
GLP: no
Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 870 mg/l
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 202

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Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 10 mg/l Exposure time: 21 d Method: OECD Test Guideline 202
Toxicity to microorganisms	:	NOEC (Pseudomonas putida): 162 mg/l Exposure time: 16 h Test Type: static test Test substance: Fresh water Method: ISO Method, other Remarks: Information given is based on data obtained from similar substances.

Persistence and degradability

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Biodegradability	:	aerobic Inoculum: Sewage (STP effluent) Concentration: 100 mg/l Result: Not readily biodegradable. Biodegradation: 0 % Exposure time: 28 d Method: OECD Test Guideline 301C Test substance: Fresh water GLP: yes

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Biodegradability	:	aerobic Inoculum: activated sludge Concentration: 6.9 mg/l Result: Not readily biodegradable. Biodegradation: 8 % Exposure time: 28 d Method: Directive 67/548/EEC Annex V, C.4.A.

2,4,6-tris(dimethylaminomethyl)phenol:

Biodegradability	:	aerobic Inoculum: activated sludge, non-adapted Concentration: 2 mg/l Result: Not biodegradable Biodegradation: 4 % Exposure time: 28 d Method: OECD Test Guideline 301D

salicylic acid:

Biodegradability	:	aerobic Inoculum: Mixture Concentration: 100 mg/l

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Biochemical oxygen demand
Result: Readily biodegradable.
Biodegradation: 88.1 %
Exposure time: 14 d
Method: OECD Test Guideline 301C
GLP: No information available.

aerobic
Inoculum: activated sludge, non-adapted
Dissolved organic carbon (DOC)
Result: Inherently biodegradable.
Biodegradation: > 90 %
Exposure time: 4 d
Method: Directive 67/548/EEC, Annex V, C.9
GLP: no

Bioaccumulative potential

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): < 60 Exposure time: 60 d Temperature: 75 °F / 24 °C Concentration: 0.02 mg/l Test substance: Fresh water Method: OECD Test Guideline 305C GLP: yes Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water	:	log Pow: 2.3 (73 °F / 23 °C) pH: 10 Method: OECD Test Guideline 107

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Partition coefficient: n-octanol/water	:	log Pow: 0.99 (73 °F / 23 °C) pH: 6.34 Method: OECD Test Guideline 107

2,4,6-tris(dimethylaminomethyl)phenol:

Partition coefficient: n-octanol/water	:	Pow: >= 0.219 (70.7 °F / 21.5 °C) log Pow: -0.66 (70.7 °F / 21.5 °C) Method: OPPTS 830.7550

salicylic acid:

Partition coefficient: n-octanol/water	:	log Pow: 2.25 (77 °F / 25 °C) Method: OECD Test Guideline 117

Mobility in soil

Components:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine):

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Distribution among environmental compartments : Koc: 1195

3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Distribution among environmental compartments : Koc: 928

salicylic acid:

Distribution among environmental compartments : Koc: 35
Method: OECD Test Guideline 121

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.

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

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 2922
Proper shipping name	:	Corrosive liquid, toxic, n.o.s. (cycloaliphatic polyamine, ISOPHORONE DIAMINE)
Class	:	8
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	Corrosive, Toxic
Packing instruction (cargo	:	855

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aircraft)
Packing instruction (passenger aircraft) : 851

IMDG-Code

UN number	:	UN 2922
Proper shipping name	:	CORROSIVE LIQUID, TOXIC, N.O.S. (cycloaliphatic polyamine, ISOPHORONE DIAMINE)
Class	:	8
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	8 (6.1)
EmS Code	:	F-A, S-B
Marine pollutant	:	yes(cycloaliphatic polyamine)

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

Not applicable for product as supplied.

National Regulations

49 CFR

UN/ID/NA number	:	UN 2922
Proper shipping name	:	Corrosive liquids, toxic, n.o.s. (cycloaliphatic polyamine, ISOPHORONE DIAMINE)
Class	:	8
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	CORROSIVE, TOXIC
ERG Code	:	154
Marine pollutant	:	yes(cycloaliphatic polyamine)

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Respiratory or skin sensitisation
Specific target organ toxicity (single or repeated exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

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California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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

DSL	:	All components of this product are on the Canadian DSL
AIIC	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals
No substances are subject to a Significant New Use Rule.

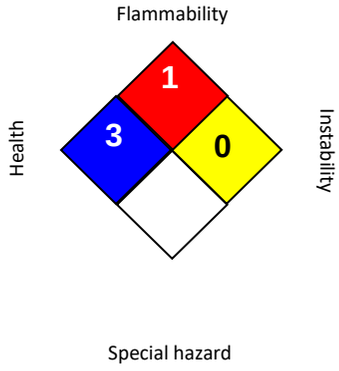
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No substances are subject to TSCA 12(b) export notification requirements.

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SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	*	3
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

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