

**SECTION 1. IDENTIFICATION**

Product name : ECTR-VRM-FC Part B

Other means of identification : No data available

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Recommended use of the chemical and restrictions on use : For further information, refer to product data sheet.

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the Hazardous Products Regulations**

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Skin corrosion : Category 1B

Serious eye damage : Category 1

Skin sensitization : Sub-category 1A

Reproductive toxicity : Category 1B

Specific target organ toxicity - repeated exposure : Category 1

GHS label elements

Hazard pictograms :



Signal Word : Danger



- Hazard Statements : H226 Flammable liquid and vapor.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H360 May damage fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
- Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
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.
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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
- Storage:**
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

Additional Labeling

There are no ingredients with unknown acute toxicity used in a mixture at a concentration $\geq 1\%$.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**Components**

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Phenol, 4-nonyl, branched	84852-15-3	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Repr. 2; H361	$\geq 10 - < 30$
2-piperazin-1-ylethylamine	140-31-8	Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 2; H361 STOT RE 1; H372	$\geq 10 - < 30$
Polyoxypropylene diamine	9046-10-0	Skin Corr. 1C; H314 Eye Dam. 1; H318	$\geq 10 - < 30$
4,4'-isopropylidenediphenol	80-05-7	Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 1B; H360 STOT SE 3; H335	$\geq 10 - < 30$
Isophoronediamine	2855-13-2	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1A; H317	$\geq 10 - < 30$
Benzyl alcohol	100-51-6	Acute Tox. 4; H302 Acute Tox. 4; H332 Eye Irrit. 2A; H319	$\geq 5 - < 10$
Adduct IA (epoxy amine adduct)	68609-08-5	Acute Tox. 4; H302 Skin Sens. 1; H317	$\geq 1 - < 5$
benzyl dimethylamine	103-83-3	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 3; H331 Acute Tox. 4; H312 Skin Corr. 1B; H314	$\geq 1 - < 5$
2-methylpentane-1,5-diamine	15520-10-2	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335	$\geq 1 - < 5$



2,2'-iminodiethylamine	111-40-0	Acute Tox. 4; H302 Acute Tox. 2; H330 Acute Tox. 4; H312 Skin Corr. 1B; H314 Skin Sens. 1; H317 STOT SE 3; H335	>= 0.1 - < 1
2-(2-aminoethylamino)ethanol	111-41-1	Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 1B; H360 STOT SE 3; H335	>= 0.1 - < 1

Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.
- If inhaled : Move to fresh air.
Consult a physician after significant exposure.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
- 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 swallowed : Clean mouth with water and drink afterwards plenty of water.
Do not induce vomiting without medical advice.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : Health injuries may be delayed.
corrosive effects
sensitizing effects
toxic effects for reproduction
Gastrointestinal discomfort
Allergic reactions
Dermatitis
Harmful if swallowed.
May cause an allergic skin reaction.
Causes serious eye damage.



May damage fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.
Causes severe burns.

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Water
High volume water jet
- Specific hazards during fire fighting : Do not use a solid water stream as it may scatter and spread fire.
- Further information : Use water spray to cool unopened containers.
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 fire-fighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Remove all sources of ignition.
Deny access to unprotected persons.
Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains.
If the product contaminates rivers and lakes or drains inform respective authorities.
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Use explosion-proof equipment.
Keep away from heat/ sparks/ open flames/ hot surfaces. No



- smoking.
Take precautionary measures against electrostatic discharges.
- Advice on safe handling : Do not breathe vapors or spray mist.
Avoid exceeding the given occupational exposure limits (see section 8).
Do not get in eyes, on skin, or on clothing.
For personal protection see section 8.
Persons with a history of skin sensitization 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.
Take precautionary measures against static discharge.
Open drum carefully as content may be under pressure.
Pregnant women or women of child-bearing age should not be exposed to this product.
Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).
Follow standard hygiene measures when handling chemical products.
- Conditions for safe storage : Store in original container.
Keep in a well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Store in accordance with local regulations.
- Materials to avoid : Explosives
Oxidizing agents
Poisonous gases
Dangerous when wet
Flammable solids
Organic peroxides
Poisonous liquids
Spontaneously Combustible Substances

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
2,2'-iminodiethylamine	111-40-0	TWA	1 ppm 4.2 mg/m ³	CA AB OEL
		TWA	1 ppm	CA BC OEL
		TWAEV	1 ppm 4.2 mg/m ³	CA QC OEL
		TWA	1 ppm	ACGIH



Engineering measures : Use of adequate ventilation should be sufficient to control worker exposure to airborne contaminants. If the use of this product generates dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.
The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits.

Personal protective equipment

Respiratory protection : Use a properly fitted NIOSH approved air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection : 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.

Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Wash hands before breaks and immediately after handling the product.
Remove respiratory and skin/eye protection only after vapors have been cleared from the area.
Remove contaminated clothing and protective equipment before entering eating areas.
Wash thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : light yellow

Odor : amine-like



Odor Threshold	:	No data available
pH	:	No data available
Melting point/range / Freezing point	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	> 53 °C (> 127 °F)
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	0.07 hpa
Relative vapor density	:	No data available
Density	:	0.998 g/ml (23.7 °C (74.7 °F))
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	530 mm ² /s (23.7 °C (74.7 °F))
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Volatile organic compounds (VOC) content	:	21 g/l A+B Combined

SECTION 10. STABILITY AND REACTIVITY



Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	The product is chemically stable.
Possibility of hazardous reactions	:	Stable under recommended storage conditions. Vapors may form explosive mixture with air.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	No data available
Hazardous decomposition products	:	No decomposition if stored and applied as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.

Components:

Phenol, 4-nonyl, branched:

Acute oral toxicity : LD50 Oral (Rat): 1,412 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): 3,160 mg/kg

2-piperazin-1-ylethylamine:

Acute oral toxicity : LD50 Oral (Rat): 2,097 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): ca. 866 mg/kg

Polyoxypropylene diamine:

Acute oral toxicity : LD50 Oral (Rat): 2,880 mg/kg

Isophoronediamine:

Acute oral toxicity : LD50 Oral (Rat): 1,030 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 10 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,000 - 5,000 mg/kg

Benzyl alcohol:

Acute oral toxicity : LD50 Oral (Rat): 1,620 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 4.178 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

**Adduct IA (epoxy amine adduct):**

Acute oral toxicity : LD50 Oral (Rat, female): 300 - 2,000 mg/kg
Method: OECD Test Guideline 423

benzyl dimethylamine:

Acute oral toxicity : LD50 Oral (Rat): 579 mg/kg

Acute inhalation toxicity : LC50 (Rat): 2.05 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 Dermal (Rabbit): 1,477 mg/kg

2-methylpentane-1,5-diamine:

Acute oral toxicity : LD50 Oral (Rat): 1,170 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): 1,870 mg/kg

2,2'-iminodiethylamine:

Acute oral toxicity : LD50 Oral (Rat): 1,553 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.071 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 Dermal (Rat): 1,045 mg/kg

Skin corrosion/irritation

Causes severe burns.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitization**Skin sensitization**

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

IARC Not applicable

OSHA Not applicable

NTP Not applicable

**Reproductive toxicity**

May damage fertility or the unborn child.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION
Ecotoxicity**Components:****Phenol, 4-nonyl, branched:****2-piperazin-1-ylethylamine:**

Toxicity to fish : LC50 (Fish): > 100 mg/l
Exposure time: 96 h

Polyoxypropylene diamine:

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (algae)): 15 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): 80 mg/l
Exposure time: 48 h

4,4'-isopropylidenediphenol:**Isophoronediamine:**

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 10 - 100 mg/l

NOEC (Desmodesmus subspicatus (green algae)): 1.5 mg/l

Benzyl alcohol:

Toxicity to fish : LC50 (Fish): > 100 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h

Adduct IA (epoxy amine adduct):

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (algae)): 3.13 mg/l



- Toxicity to fish (Chronic toxicity) : LC50 (Danio rerio (zebra fish)): 1.62 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): 1.75 mg/l
Exposure time: 48 h

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects**Product:**

- Additional ecological information : Do not empty into drains; dispose of this material and its container in a safe way.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
May be harmful to the environment if released in large quantities.
Water polluting material.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

- Waste from residues : 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.
- Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

- UN/ID No. : UN 2735
- Proper shipping name : Amines, liquid, corrosive, n.o.s.
(4-nonylphenol, branched, 3-aminomethyl-3,5,5-trimethylcyclohexylamine, Polyoxypropylene diamine)
- Class : 8
- Packing group : II



Labels : Corrosive
 Packing instruction (cargo : 855
 aircraft)
 Packing instruction (passen- : 851
 ger aircraft)

IMDG-Code

UN number : UN 2735
 Proper shipping name : AMINES, LIQUID, CORROSIVE, N.O.S.
 (4-nonylphenol, branched, 3-aminomethyl-3,5,5-
 trimethylcyclohexylamine, Polyoxypropylene diamine)
 Class : 8
 Packing group : II
 Labels : 8
 EmS Code : F-A, S-B
 Marine pollutant : yes

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

Not applicable for product as supplied.

Domestic regulation**TDG**

UN number : UN 2735
 Proper shipping name : AMINES, LIQUID, CORROSIVE, N.O.S.
 (Phenol, 4-nonyl, branched, 3-aminomethyl-3,5,5-
 trimethylcyclohexylamine, Polyoxypropylene diamine)
 Class : 8
 Packing group : II
 Labels : 8
 ERG Code : 153
 Marine pollutant : no

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**Canadian lists**

The following substance(s) is/are subject to a Significant New Activity Notification:
 propylene oxide 75-56-9
 α-chlorotoluene 100-44-7

SECTION 16. OTHER INFORMATION**Full text of other abbreviations**

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
 CA AB OEL : Canada. Alberta, Occupational Health and Safety Code (table
 2: OEL)



CA BC OEL	:	Canada. British Columbia OEL
CA QC OEL	:	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for air-borne contaminants
ACGIH / TWA	:	8-hour, time-weighted average
CA AB OEL / TWA	:	8-hour Occupational exposure limit
CA BC OEL / TWA	:	8-hour time weighted average
CA QC OEL / TWA EV	:	Time-weighted average exposure value
ADR	:	Accord européen relatif au transport international des marchandises Dangereuses par Route
CAS	:	Chemical Abstracts Service
DNEL	:	Derived no-effect level
EC50	:	Half maximal effective concentration
GHS	:	Globally Harmonized System
IATA	:	International Air Transport Association
IMDG	:	International Maritime Code for Dangerous Goods
LD50	:	Median lethal dose (the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals)
LC50	:	Median lethal concentration (concentrations of the chemical in air that kills 50% of the test animals during the observation period)
MARPOL	:	International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978
OEL	:	Occupational Exposure Limit
PBT	:	Persistent, bioaccumulative and toxic
PNEC	:	Predicted no effect concentration
REACH	:	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency
SVHC	:	Substances of Very High Concern
vPvB	:	Very persistent and very bioaccumulative

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