SAFETY DATA SHEET

VIRKON™

Version	Revision Date:	SDS Number:	Date of last issue: 09/28/2020
1.6	10/02/2020	203000010131	Country / Language: CA / EN

024-006
024-008
024-368
024-369
EN

SECTION 1. IDENTIFICATION

Product name : VIRKON™

Product code : 000000000057807201

Other means of identification : No data available

Manufacturer or supplier's details

Company : LANXESS Canada Co.
Product Safety and Regulatory Affairs
25 Erb Street
Elmira, Canada N3B 3A3

Responsible Department : YLXS-YADD00000000052
+1800LANXESS

Emergency telephone number : In an emergency, CANUTEC may be called collect at:
613.996.6666 (24 hrs)
*666 cellular (Canada only)

Recommended use of the chemical and restrictions on use

Recommended use : Disinfectants
DIN: 02125021

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations (WHMIS 2015).

Skin irritation : Category 2

Serious eye damage : Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Causes skin irritation.
Causes serious eye damage.

Precautionary statements : **Prevention:**
Wash skin thoroughly after handling.
Wear protective gloves/ eye protection/ face protection.

Response:
IF ON SKIN: Wash with plenty of water.
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.
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash it before reuse.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
pentapotassium bis(peroxymonosulphate) bis(sulphate)	70693-62-8	>= 30 - < 60
Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts	68411-30-3	>= 10 - < 30
malic acid	6915-15-7	>= 5 - < 10
sulphamidic acid	5329-14-6	>= 1 - < 5
potassium hydrogensulphate	7646-93-7	>= 1 - < 5
dipotassium disulphate	7790-62-7	>= 1 - < 5
sodium toluenesulphonate	12068-03-0	>= 1 - < 5
dipotassium peroxodisulphate	7727-21-1	>= 0.1 - < 1
dipentene	138-86-3	>= 0.1 - < 1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

SECTION 4. FIRST AID MEASURES

If inhaled : Get medical attention immediately.
Remove victim to fresh air and keep at rest in a position comfortable for breathing.
If unconscious, place in recovery position and get medical attention immediately.
Maintain open airway.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.

In case of skin contact : Wash off with soap and water.
Continue to rinse for at least 20 minutes.
Get medical attention if symptoms occur.

Wash contaminated clothing before reuse.

In case of eye contact : Get medical attention immediately.
In case of contact, flush eyes with plenty of water for at least 30 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated.
Remove contact lenses, if present and easy to do. Continue rinsing.
Chemical burns must be treated promptly by a physician.

If swallowed : Rinse mouth with water.
Do not induce vomiting unless directed to do by medical personnel.
If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
Get medical attention immediately.
Chemical burns must be treated promptly by a physician.
Never give anything by mouth to an unconscious person.
Maintain open airway.

Most important symptoms and effects, both acute and delayed

Symptoms : Eye: Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.
Skin: Causes irritation with symptoms of reddening, itching, and swelling.

Effects : Causes skin irritation.
Causes serious eye damage.

Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
In case of fire, use water spray (fog), foam or dry chemical.

Unsuitable extinguishing media : Do not use water jet.
Carbon dioxide (CO2)

Specific hazards during firefighting : Water runoff from fire fighting may be corrosive.
May release toxic, irritating and/or corrosive gases.

Hazardous combustion products : Carbon dioxide (CO2)
Carbon monoxide
Sulphur oxides
Metal oxides
Nitrogen oxides (NOx)
Halogenated compounds
Phosphorus oxides

Further information	:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
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	:	No action shall be taken involving any personal risk or without suitable training. Put on appropriate personal protection equipment. Do not touch or walk through spilled material. Evacuate personnel to safe areas. Keep unnecessary and unprotected personnel from entering. Provide adequate ventilation. Avoid breathing dust.
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	:	Move containers from spill area. Keep people away from and upwind of spill/leak. Avoid dust formation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of wastes in an approved waste disposal facility.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.
Advice on safe handling	:	Remove contaminated clothing and protective equipment before entering eating areas. Workers should wash hands and face before eating, drinking and smoking. Put on appropriate personal protection equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Avoid inhalation, ingestion and contact with skin and eyes. Use only with adequate ventilation.
Conditions for safe storage	:	Protect from moisture.

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

Materials to avoid : Do not store near acids.

Recommended storage temperature : < 50 °C

Further information on storage stability : Keep in a dry place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
dipotassium peroxodisulphate	7727-21-1	TWA	0.1 mg/m3 (Persulphate)	ACGIH

Engineering measures : If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal protective equipment

Respiratory protection : The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline.
NIOSH approved, air-purifying particulate respirator with N-95 filters.

Hand protection
Material : Butyl rubber - IIR
Wearing time : < 60 min

Eye protection : Safety glasses with side-shields
If inhalation hazards exist, a full-face respirator may be required instead.

Skin and body protection : Wear suitable protective clothing.

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	powder
Colour	:	pink
Odour	:	pleasant, sweet
Odour Threshold	:	No data available
pH	:	2.35 - 2.65 Concentration: 1 %
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Self-ignition	:	No data available
Burning number	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	1.07 g/cm3 (20 °C)
Solubility(ies)		

Water solubility	:	65 g/l
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Decomposition temperature	:	> 50 °C
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing. Method: Regulation (EC) No. 440/2008, Annex, A.17

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is chemically stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur. Stable under recommended storage conditions. Dust may form explosive mixture in air.
Conditions to avoid	:	Exposure to moisture
Incompatible materials	:	Incompatible with acids. Combustible material Oxidizing agents Strong bases brass Cyanides Copper Halogenated compounds Metal salt.
Hazardous decomposition products	:	Oxygen Chlorine Sulphur oxides Hypochlorites

SECTION 11. TOXICOLOGICAL INFORMATION

The most important known symptoms and effects are described in Section 2 and/or Section 4.

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : LD50 (Rat, male and female): 4,123 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Acute inhalation toxicity : LC50 (Rat): 3.7 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: the particle size measurements of the product indicate that it is not respirable and therefore not bioavailable by the inhalation route.

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg
Remarks: Extrapolation according to Regulation (EC) No. 440/2008

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Acute oral toxicity : LD50 (Rat, male and female): 500 mg/kg
Method: OECD Test Guideline 423

Acute inhalation toxicity : LC0 (Rat, male): > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Highest producible concentration.

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Extrapolation according to Regulation (EC) No. 440/2008

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Acute oral toxicity : LD50 (Rat, male and female): 1,080 mg/kg
Method: OECD Test Guideline 401
GLP: no

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
Remarks: Dosage caused no mortality

malic acid:

Acute oral toxicity : LD50 (Rat, male and female): 3,500 mg/kg
Method: OECD Test Guideline 401
GLP: no

Acute inhalation toxicity : LC0 (Rat, male and female): > 1.306 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: Highest producible concentration.

Acute dermal toxicity : LD50 (Rabbit, female): > 5,000 mg/kg
Method: OECD Test Guideline 401
GLP: no

sulphamidic acid:

Acute oral toxicity : LD50 (Rat, female): 2,140 mg/kg
Method: OECD Test Guideline 401
GLP: yes

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

potassium hydrogensulphate:

Acute oral toxicity : LD50 (Rat): 2,340 mg/kg

dipotassium disulphate:

Acute oral toxicity : LD50 (Rat, male): 2,140 mg/kg
Method: OECD Test Guideline 401
Remarks: Test results on an analogous product

Acute inhalation toxicity : Assessment: Corrosive to the respiratory tract.

Assessment: The component/mixture is toxic after short term inhalation.

sodium toluenesulphonate:

Acute oral toxicity : LD50 (Rat): 6,500 mg/kg

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

dipotassium peroxodisulphate:

Acute oral toxicity : LD50 (Rat): 700 mg/kg

Acute inhalation toxicity : LC0 (Rat): > 2.95 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: Highest producible concentration.

Acute dermal toxicity : LD50 (Rabbit): > 10,000 mg/kg

dipentene:

Acute oral toxicity : LD50 (Rat): 5,300 mg/kg

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Product:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Irritating to skin.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Species : Rabbit
Method : OECD Test Guideline 404
Result : Causes burns.

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Irritating to skin.
GLP : no

malic acid:

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

sulphamidic acid:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Irritating to skin.

potassium hydrogensulphate:

Assessment	:	Causes burns.

dipotassium disulphate:

Assessment	:	Causes severe burns.

sodium toluenesulphonate:

Species	:	Rabbit
Result	:	Irritating to skin.

dipotassium peroxodisulphate:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Irritating to skin.

dipentene:

Assessment	:	Irritating to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Species	:	Rabbit
Result	:	Risk of serious damage to eyes.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Species	:	Rabbit
Result	:	Risk of serious damage to eyes.
Method	:	OECD Test Guideline 405

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

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

malic acid:

Species	:	Rabbit
Result	:	Irritating to eyes.

Method : OECD Test Guideline 405

sulphamidic acid:

Species : Rabbit
Result : Irritating to eyes.
Method : OECD Test Guideline 405

dipotassium disulphate:

Assessment : Risk of serious damage to eyes.

sodium toluenesulphonate:

Species : Rabbit
Result : Irritating to eyes.

dipotassium peroxodisulphate:

Result : Irritating to eyes.

dipentene:

Species : Rabbit
Result : Irritating to eyes.

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Product:

Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Did not cause sensitisation on laboratory animals.

Exposure routes : Inhalation
Species : Mammal - species unspecified
Method : Expert judgement
Result : Does not cause respiratory sensitisation.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

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

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

malic acid:

Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

sulphamidic acid:

Result	:	Did not cause sensitisation on laboratory animals.

sodium toluenesulphonate:

Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.

dipotassium peroxodisulphate:

Exposure routes	:	Inhalation
Species	:	Mammal - species unspecified
Result	:	May cause sensitisation by inhalation.
Exposure routes	:	Skin contact
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	May cause sensitisation by skin contact.

dipentene:

Test Type	:	Maximisation Test
Exposure routes	:	Dermal
Species	:	Guinea pig
Result	:	May cause sensitisation by skin contact.

Germ cell mutagenicity

Not classified based on available information.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Genotoxicity in vitro : Test system: Mammalian-Animal
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive
GLP: yes

Test system: Bacteria
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test system: Mammalian-Human
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes

Genotoxicity in vivo : Species: Mammalian-Animal
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

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

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

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes

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

Genotoxicity in vivo : Test Type: Cytogenetic assay
Species: Mouse (male)
Cell type: Bone marrow
Application Route: Oral
Result: negative
GLP: no

Test Type: dominant lethal test
Species: Mouse (male)
Application Route: Oral
Result: negative
GLP: no

malic acid:

Genotoxicity in vitro : Remarks: Not mutagenic in a standard battery of genetic toxicological tests.

sulphamidic acid:

Genotoxicity in vitro : Test system: Mammalian-Human
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative
GLP: yes

Test system: Mammalian-Animal
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test system: Bacteria
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

sodium toluenesulphonate:

Genotoxicity in vitro : Remarks: No mutagenic effect.

dipotassium peroxodisulphate:

Genotoxicity in vitro : Remarks: Not mutagenic in a standard battery of genetic toxicological tests.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Effects on foetal development : Remarks: No teratogenic or fetotoxic effects were found at all dose levels tested.

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Effects on fertility : Test Type: Three-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0 - 14 - 70 milligram per kilogram
General Toxicity - Parent: NOAEL: 350 mg/kg body weight
General Toxicity F1: NOAEL: 350 mg/kg body weight
General Toxicity F2: NOAEL: 350 mg/kg body weight
Fertility: NOAEL: 350 mg/kg body weight
Result: Animal testing did not show any effects on fertility.
GLP: no
Remarks: Test results on an analogous product

Effects on foetal development : Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL: 300 mg/kg body weight
Teratogenicity: NOAEL: 300 mg/kg body weight
Result: No teratogenic effects
GLP: no
Remarks: Test results on an analogous product

malic acid:

Effects on foetal development : Remarks: No known significant effects or critical hazards.

STOT - single exposure

Not classified based on available information.

Components:

potassium hydrogensulphate:

Assessment : May cause respiratory irritation.

dipotassium peroxodisulphate:

Assessment : May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Species	:	Rat, male and female
LOAEL	:	> 1,000 mg/kg
Application Route	:	Oral
Exposure time	:	28 d
Number of exposures	:	7 days/week
Method	:	OECD Test Guideline 407
Remarks	:	Subacute toxicity

Species	:	Rat, male and female
LOAEL	:	600 mg/kg
Application Route	:	Oral
Exposure time	:	90 d
Number of exposures	:	7 days/week
Method	:	OECD Test Guideline 408
Remarks	:	Subchronic toxicity

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Species	:	Rat, male and female
NOAEL	:	85 mg/kg
LOAEL	:	145 mg/kg
Application Route	:	Oral
Exposure time	:	36 w
GLP	:	no
Remarks	:	Subchronic toxicity

malic acid:

Remarks	:	No known significant effects or critical hazards.

sodium toluenesulphonate:

Species	:	Rat
NOAEL	:	114 mg/kg
Application Route	:	Oral
Exposure time	:	91 d
Method	:	OECD Test Guideline 408
Remarks	:	Subchronic toxicity

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks	:	No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC50 (Salmo salar (Atlantic salmon)): 24.6 mg/l
Exposure time: 96 h
Method: Regulation (EC) No. 440/2008, Annex, C.1
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 6.5 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Fresh water

Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): 6.25 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Fresh water

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 53 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
GLP: yes
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.5 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
GLP: yes
Remarks: Fresh water

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (microalgae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes
Remarks: Fresh water

NOEC (Pseudokirchneriella subcapitata (microalgae)): 0.5 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes
Remarks: Fresh water

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 2.88 mg/l Exposure time: 96 h Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: no Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2.9 mg/l Exposure time: 48 h Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes Remarks: Fresh water
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 235 mg/l Exposure time: 72 h Analytical monitoring: no Method: OECD Test Guideline 201 GLP: no Remarks: Fresh water EC10 (Pseudokirchneriella subcapitata (green algae)): 13.1 mg/l Exposure time: 72 h Analytical monitoring: no Method: OECD Test Guideline 201 GLP: no Remarks: Fresh water
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 0.23 mg/l Exposure time: 72 d Analytical monitoring: yes Method: OECD Test Guideline 210 GLP: no Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 1.18 mg/l Exposure time: 21 d Analytical monitoring: yes Method: OECD Test Guideline 211 GLP: no Remarks: Fresh water

malic acid:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 GLP: yes Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 240 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 GLP: yes Remarks: Fresh water
Toxicity to algae/aquatic plants	:	EC50 (algae): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes Remarks: Fresh water NOEC (algae): 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes Remarks: Fresh water

sulphamidic acid:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 70.3 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 GLP: no Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 71.6 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 GLP: yes Remarks: Fresh water
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 48 mg/l End point: Growth rate Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes Remarks: Fresh water NOEC (Desmodesmus subspicatus (green algae)): 18 mg/l End point: Growth rate Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes Remarks: Fresh water
Toxicity to fish (Chronic toxicity)	:	NOEC (Danio rerio (zebra fish)): >= 60 mg/l Exposure time: 34 d Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (Chron-	:	NOEC (Daphnia magna (Water flea)): 19 mg/l Exposure time: 21 d

ic toxicity)		Method: OECD Test Guideline 211
Toxicity to microorganisms	:	EC50: > 200 mg/l End point: Respiration inhibition Exposure time: 3 h Method: OECD Test Guideline 209 GLP: yes Remarks: Fresh water

dipotassium disulphate:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 680 mg/l Exposure time: 96 h Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 720 mg/l Exposure time: 48 h Remarks: Fresh water
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (microalgae)): 1,492 mg/l Exposure time: 96 h Remarks: Fresh water EC10 (Pseudokirchneriella subcapitata (microalgae)): 656 mg/l Exposure time: 96 h Remarks: Fresh water
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): > 595 mg/l Exposure time: 7 Days Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Ceriodaphnia dubia (Water flea)): 790 mg/l Exposure time: 7 Days Remarks: Fresh water

sodium toluenesulphonate:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 490 mg/l Exposure time: 96 h Remarks: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 318 mg/l Exposure time: 48 h Remarks: Fresh water
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 245 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Fresh water

NOEC (Desmodesmus subspicatus (green algae)): 18 mg/l
Exposure time: 72 h
Remarks: Fresh water

dipotassium peroxodisulphate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 76.3 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 120 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (microalgae)): 83.7 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Ecotoxicology Assessment

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

dipentene:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0.702 mg/l
Exposure time: 96 h
Remarks: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.421 mg/l
Exposure time: 48 h
Remarks: Fresh water

Persistence and degradability

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 83 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
GLP: yes

malic acid:

Biodegradability : aerobic
Result: Readily biodegradable.
Biodegradation: 67.5 %

Exposure time: 28 d
Method: OECD Test Guideline 301B
GLP: yes

sulphamidic acid:

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

dipotassium disulphate:

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

sodium toluenesulphonate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 - 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

dipotassium peroxodisulphate:

Biodegradability : Result: The methods for determining the biological degradability are not applicable to inorganic substances.

dipentene:

Biodegradability : Result: Not rapidly biodegradable

Bioaccumulative potential

Components:

pentapotassium bis(peroxymonosulphate) bis(sulphate):

Partition coefficient: n-octanol/water : log Pow: < 0.3
Method: OECD Test Guideline 117

Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts:

Partition coefficient: n-octanol/water : log Pow: 1.4 (23 °C)
Method: OECD Test Guideline 123

malic acid:

Partition coefficient: n-octanol/water : log Pow: -1.26

sulphamidic acid:

Partition coefficient: n-octanol/water : log Pow: -4.34

Mobility in soil

No data available

Other adverse effects

Product:

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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The generation of waste should be avoided or minimized wherever possible.
This material and its container must be disposed of in a safe way.
Empty containers retain product residue; observe all precautions for product.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Waste disposal should be in accordance with existing federal, state, provincial and/or local environmental controls.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

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

Not applicable for product as supplied.

National Regulations

TDG
Not regulated as a dangerous good

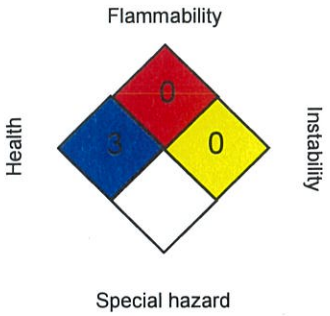
Hazard and Handling Notes. : Not dangerous cargo, Risk of serious damage to eyes, Irritating to skin., Keep dry., Keep separated from foodstuffs

SECTION 15. REGULATORY INFORMATION

DSL : All components of this product are on the Canadian DSL

Further information

NFPA:



HMIS® IV:

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.

LANXESS' method of hazard communication is comprised of Product Labels and Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS as a customer service.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA	:	8-hour, time-weighted average

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-

operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Revision Date : 10/02/2020

The data contained in this Safety Data Sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered to be a guidance for processing and does not contain any warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. It is the responsibility of the recipient of the product to ensure that any proprietary rights and existing laws and legislation are observed.