SAFETY DATA SHEET

VIRKON S

LANXESS Energizing Chemistry

57747484

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

1.1 Product identifier

Product name : VIRKON S

Hazardous ingredients : Contains: pentapotassium bis(peroxymonosulphate) bis(sulphate),dipotassium peroxodisulphate,dipentene

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

Suitable uses : disinfectants, Cleaning agents

1.3 Details of the supplier of the safety data sheet

Supplier : Antec International Limited
Windham Road
Chilton Industrial Estate
Sudbury / Suffolk - CO10 2XD
United Kingdom

Telephone: +49 221 8885 2288
E-mail: infosds@lanxess.com

1.4 Emergency telephone number

Telephone number : 0870 190 6777. National Chemical Emergency Centre

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification : Skin Irrit. 2, H315
Eye Dam. 1, H318
Aquatic Chronic 3, H412

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

2.2 Label elements

Hazard pictograms :

Signal word : Danger

Contains: pentapotassium bis(peroxymonosulphate) bis(sulphate),dipotassium peroxodisulphate,dipentene

Hazard statements : H318 - Causes serious eye damage.
H315 - Causes skin irritation.
H412 - Harmful to aquatic life with long lasting effects.

Supplemental label elements : Contains dipotassium peroxodisulphate and dipentene. May produce an allergic reaction.

Precautionary statements

Prevention : Wear protective gloves/clothing and eye/face protection. Avoid release to the environment. Wash hands thoroughly after handling. Keep out of reach of children.

Response : 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 or doctor/physician.

Storage : Not applicable.

SECTION 2: Hazards identification

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

2.3 Other hazards

Other hazards which do not result in classification : May form explosible dust-air mixture if dispersed. Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

SECTION 3: Composition/information on ingredients

Product definition (REACH) : Mixture

Product/ingredient name	Identifiers	%	Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]	Type
pentapotassium bis (peroxymonosulphate) bis (sulphate)	REACH #: 01-2119485567-22 EC: 274-778-7 CAS: 70693-62-8	25 - 50	Acute Tox. 4, H302 Skin Corr. 1B, H314 Aquatic Chronic 3, H412	[1]
alkylarylsulphonate	REACH #: 01-2119489428-22 EC: 270-115-0 CAS: 68411-30-3	10 - ≤25	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412	[1]
maleic acid	REACH #: 01-2119906954-31 EC: 230-022-8 CAS: 6915-15-7	≤10	Eye Irrit. 2, H319	[1]
sulphamic acid	REACH #: 01-2119488633-28 EC: 226-218-8 CAS: 5329-14-6 Index: 016-026-00-0	≤5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Chronic 3, H412	[1]
dipotassium disulphate	EC: 232-216-8 CAS: 7790-62-7	≤5	Acute Tox. 3, H331 Skin Corr. 1A, H314 EUH071	[1]
potassium hydrogensulphate	EC: 231-594-1 CAS: 7646-93-7 Index: 016-056-00-4	≤5	Skin Corr. 1B, H314 STOT SE 3, H335	[1]
dipotassium peroxodisulphate	REACH #: 01-2119495676-19 EC: 231-781-8 CAS: 7727-21-1 Index: 016-061-00-1	≤5	Ox. Sol. 3, H272 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 STOT SE 3, H335	[1]
sodium toluenesulphonate	EC: 235-088-1 CAS: 12068-03-0	≤5	Skin Irrit. 2, H315 Eye Irrit. 2, H319	[1]
dipentene	EC: 205-341-0 CAS: 138-86-3 Index: 601-029-00-7	<1	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) **See Section 16 for the full text of the H statements declared above.**	[1]

Occupational exposure limits, if available, are listed in Section 8.

Type

SECTION 3: Composition/information on ingredients

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

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

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : In case of fire, use water spray (fog), foam or dry chemical.

Unsuitable extinguishing media : Carbon dioxide (CO_2). water jet

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Fine dust clouds may form explosive mixtures with air. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

SECTION 5: Firefighting measures

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
phosphorus oxides
halogenated compounds
metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material.

6.3 Methods and material for containment and cleaning up

Small spill : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Use spark-proof tools and explosion-proof equipment. Approach the release from upwind. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

SECTION 7: Handling and storage

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Avoid release to the environment. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Conditions for safe storage, including any incompatibilities : Do not store above the following temperature: 50°C (122°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

Remarks : Protect from moisture.
Keep away from: Combustible substances, strong alkalis

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Exposure limit values : Not available.

Derived effect levels

Ingredient name	Type	Exposure	Value	Population	Effects	Remarks
alkylarylsulphonate	DNEL	Long term Oral	12,95 mg/kg bw/day	Human via the environment	Systemic	-
	DNEL	Long term Inhalation	152,22 mg/m³	Workers	Systemic	-
	DNEL	Long term Dermal	2158,33 mg/kg bw/day	Workers	Systemic	-
	DNEL	Long term Dermal	1295 mg/kg bw/day	Human via the environment	Systemic	-
sulphamic acid	DNEL	Long term Dermal	10 mg/kg bw/day	Workers	Systemic	-
	DNEL	Long term Dermal	5 mg/kg bw/day	Human via the environment	Systemic	-

Conclusion/Summary : Not available.

SECTION 8: Exposure controls/personal protection

Predicted No Effect Concentration (PNEC)

Ingredient name	Compartment Detail	Value	Method Detail	Remarks
alkylarylsulphonate	soil	0,0061 mg/kg	Equilibrium Partitioning	-
	Sewage Treatment Plant	4 mg/l	Assessment Factors	-
	Sediment	2,025 mg/kg	Equilibrium Partitioning	-
	Marine water sediment	0,2025 mg/kg	Assessment Factors	-
	Marine water	0,0042 mg/l	Assessment Factors	-
	Fresh water	0,042 mg/l	Assessment Factors	-
sulphamic acid	soil	0,00638 mg/kg	-	-
	Sewage Treatment Plant	2 mg/l	-	-
	Marine water	0,0048 mg/l	-	-
	Fresh water sediment	0,173 mg/kg	-	-
	Fresh water	0,048 mg/l	-	-

Conclusion/Summary : Not available.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. The assessment of potential dust hazards must be carried out based on handling and quantity. Safeguards according relevant regulations must be applied.

Individual protection measures

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.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Recommended: Tightly fitting safety goggles.

Skin protection

SECTION 8: Exposure controls/personal protection

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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations
Recommended: (< 1 hour) Butyl rubber - IIR

Other skin protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: Wear protective clothing.

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Recommended: Full mask with type ABEK-P2 filter

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Solid. [powder]

Colour : pink

Odour : Pleasant. Sweet.

Odour threshold : Not available.

pH : 2.35 to 2.65 [Conc. (% w/w): 1%]

Melting point : Not available.

Boiling point : Not available.

Flash point : Not available.

Burning time : Not available.

Burning rate : Not available.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapour pressure : Not available.

Vapour density : Not available.

Density : 1.07 kg/L (20°C)

Relative density : Not available.

Solubility in water : 65 g/l

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : >50°C (>122°F)

Viscosity : Not available.

Explosive properties : Not available.

Oxidising properties : Not available.

9.2 Other information

No additional information.

SECTION 9: Physical and chemical properties

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

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

10.4 Conditions to avoid : moisture, strong alkalis, combustible materials, acids, oxidising agents, brass, Copper., cyanides, halides, Metal salt.

10.5 Incompatible materials : strong alkalis, combustible materials, acids, oxidizing materials, brass, copper, cyanides, halides, Metal salt.

10.6 Hazardous decomposition products : oxygen, chlorine, sulphur oxides (SO_2, SO_3, etc.), hypochlorites

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Test
VIRKON S	LD50 Oral	Rat	4123 mg/kg	-	OECD 401 Acute Oral Toxicity
VIRKON S	LD50 Dermal	Rat	>5000 mg/kg Extrapolation according to Regulation (EC) No. 440/2008	-	-
VIRKON S	LC50 Inhalation Dusts and mists	Rat	3.7 mg/l the particle size measurements of the product indicate that it is not respirable and therefore not bioavailable by the inhalation route.	4 hours	-

Acute toxicity estimates

Route	ATE value
Inhalation (dusts and mists)	21,68 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Test	Reversibility
sulphamic acid	Eyes - Cornea opacity	Rabbit	2	-	-	Fully reversible
	Eyes - Redness of the conjunctivae	Rabbit	1.5	-	-	Fully reversible
	Eyes - Oedema of	Rabbit	1.5	-	-	Fully reversible in

SECTION 11: Toxicological information

	the conjunctivae					more than 7 days

Conclusion/Summary

Skin : OECD404: irritant (Rabbit)

Eyes : pentapotassium bis(peroxymonosulphate) bis(sulphate):OECD405: Risk of serious damage to eyes. (Rabbit)
alkylarylsulphonate:Causes serious eye damage. (Rabbit) OECD 405 Acute Eye Irritation/Corrosion
maleic acid:OECD 405: irritant (Rabbit)
sulphamic acid:Moderate irritant , OECD 405 Acute Eye Irritation/Corrosion
dipotassium disulphate:Risk of serious damage to eyes.
dipotassium peroxodisulphate:Irritating to eyes.
sodium toluenesulphonate:irritant (Rabbit)
dipentene:irritant (Rabbit)

Sensitisation

Product/ingredient name	Route of exposure	Species	Result	Test description
VIRKON S	skin	Guinea pig	Not sensitizing	Buehler or maximisation test
	Respiratory	Mammal - species unspecified	Not sensitizing	Expert judgement

Mutagenicity

Product/ingredient name	Test	Experiment	Result
pentapotassium bis (peroxymonosulphate) bis(sulphate)	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: +/-	Positive
	OECD 473 In vitro Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Human Cell: Somatic Metabolic activation: +/-	Positive
	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	OECD 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative
alkylarylsulphonate	Ames test	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
	Cytogenetic assay	Experiment: In vivo Subject: Mammalian-Animal	Negative
sulphamic acid	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: With and Without	Negative
	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: With and Without	Negative
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: With and Without	Negative

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	OECD 476 In vitro Mammalian Cell Gene Mutation Test OECD 487 In vitro Micronucleus Test	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: With and Without Experiment: In vitro Subject: Mammalian-Human Metabolic activation: with and without	Negative Negative

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
alkylarylsulphonate	Negative - Oral -	Rat	-	2 years; daily

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
alkylarylsulphonate	Positive - Oral	Rat - Female	600 mg/kg NOAEL	15 days Gestation; daily

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
potassium hydrogensulphate	Category 3	Not applicable.	Respiratory tract irritation
dipotassium peroxodisulphate	Category 3	Not applicable.	Respiratory tract irritation

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system.

Skin contact : Causes skin irritation.

Ingestion : No known significant effects or critical hazards.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
pentapotassium bis (peroxymonosulphate) bis (sulphate)	Sub-acute NOEL Oral	Rat - Male, Female	>1000 mg/kg bw/ day	28 days
	Sub-chronic LOAEL Oral	Rat - Male, Female	600 mg/kg bw/ day	90 days; 7 days per week daily
Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts	Sub-chronic NOAEL Oral	Rat - Male, Female	50 mg/kg	12 weeks; daily
sodium toluenesulphonate	Sub-chronic NOAEL Oral	Rat	114 mg/kg	91 days

Conclusion/Summary : maleic acid:No known significant effects or critical hazards.

General : Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

SECTION 11: Toxicological information

Other information : Not available.

Remarks : dipotassium peroxodisulphate : Not mutagenic in a standard battery of genetic toxicological tests.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test	Result	Species	Exposure
VIRKON S	EU Method C.1 (Acute Toxicity for Fish)	Acute LC50 24.6 mg/l Fresh water	Fish - Salmo salar	96 hours
	OECD 201 Alga, Growth Inhibition Test	Acute EC50 20 mg/l Fresh water	Algae - Scenedesmus subspicatus	72 hours
	-	Acute EC50 5.54 mg/l Marine water	Algae - Dunaliella	96 hours
	OECD 202 *Daphnia* sp. Acute Immobilization Test	Acute EC50 6.5 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
VIRKON S	OECD 201 Alga, Growth Inhibition Test	Chronic NOEC 6.25 mg/l Fresh water	Algae - Scenedesmus subspicatus	72 hours
pentapotassium bis (peroxymonosulphate) bis (sulphate)	OECD 201 Alga, Growth Inhibition Test	Chronic NOEC 0.5 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
alkylarylsulphonate	OECD 204 Fish, Prolonged Toxicity Test: 14-Day Study	Chronic NOEC 1 mg/l Fresh water	Fish - Lepomis macrochirus	28 days
	OECD 211 Daphnia Magna Reproduction Test	Chronic NOEC 1.18 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	EPA 600/9-78-018	Chronic NOEC 3.1 mg/l	Algae - Chlorella vulgaris	15 days
maleic acid	OECD 201 Alga, Growth Inhibition Test	Chronic NOEC 100 mg/l Fresh water	Algae - Daphnia magna	72 hours
sulphamic acid	OECD 201 Alga, Growth Inhibition Test	Chronic EC10 29.5 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	OECD 201 Alga, Growth Inhibition Test	Chronic NOEC 18 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
dipotassium disulphate	-	Chronic NOEC >595 mg/l Read-across from CAS no. 7757-82-6 Fresh water	Fish - Pimephales promelas	7 days
	-	Chronic NOEC 790 mg/l Read-across from CAS no. 7757-82-6 Fresh water	Daphnia - Daphnia dubia (water flea)	7 days
sodium toluenesulphonate	-	Chronic NOEC 18 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours

Conclusion/Summary : Not available.

12.2 Persistence and degradability

SECTION 12: Ecological information

Product/ingredient name	Test	Result	Dose	Inoculum
Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts	OECD 301B Ready Biodegradability - CO_2 Evolution Test	83 % - Readily - 28 days	34.3 mg/l	Activated sludge
malic acid	OECD 301B Ready Biodegradability - CO_2 Evolution Test	67.5 % - Readily - 28 days	-	-
sodium toluenesulphonate	OECD 301C Ready Biodegradability - Modified MITI Test (I)	0 to 2 % - Not readily - 28 days	-	-

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts	-	-	Readily
malic acid	-	-	Readily
sodium toluenesulphonate	-	-	Not readily
dipentene	-	-	Not readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
pentapotassium bis (peroxymonosulphate) bis (sulphate)	<0.3	-	low
Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts	1.4	-	low
malic acid	-1.26	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects

Other adverse effects : No known significant effects or critical hazards.

AOX : Not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

SECTION 13: Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

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

Packaging

Methods of disposal

: The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	-	-	-	-
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)/ Marks	- -	- -	- -	- -
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No	No
14.6 Special precautions for user/Additional information	Not regulated.	Not regulated.	Not regulated.	Not regulated.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

Hazard notes:

Not dangerous cargo.
Irritating to skin.
Keep dry.
Risk of serious damage to eyes.
Keep separated from foodstuffs.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

SECTION 15: Regulatory information

None of the components are listed.

Other EU regulations

Seveso Directive

This product is not controlled under the Seveso III Directive.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412	Expert judgement Calculation method Calculation method

Full text of abbreviated H statements

H226	Flammable liquid and vapour.
H272	May intensify fire; oxidiser.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 3, H331	ACUTE TOXICITY (inhalation) - Category 3
Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Aquatic Acute 1, H400	ACUTE AQUATIC HAZARD - Category 1
Aquatic Chronic 1, H410	LONG-TERM AQUATIC HAZARD - Category 1
Aquatic Chronic 3, H412	LONG-TERM AQUATIC HAZARD - Category 3
EUH071	Corrosive to the respiratory tract.
Eye Dam. 1, H318	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
Ox. Sol. 3, H272	OXIDIZING SOLIDS - Category 3
Resp. Sens. 1, H334	RESPIRATORY SENSITIZATION - Category 1
Skin Corr. 1A, H314	SKIN CORROSION/IRRITATION - Category 1A
Skin Corr. 1B, H314	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1, H317	SKIN SENSITIZATION - Category 1
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

SECTION 16: Other information

History

Date of issue : **2017-02-23**

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Version : **4.01**

Notice to reader

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet and its Annex [if required according to Regulation (EC) 1907/2006 (REACh)] is to describe the products in terms of their safety requirements. The given details do not imply any guarantee concerning the composition, properties or performance.