Safety Data Sheet

Potassium Perchlorate Anhydrous

Section 1. Identification

GHS product identifier : Potassium Perchlorate Anhydrous

Product use : Oxidizing agent

Restrictions on use : None known.

In case of emergency - Chemical

Hours of operation : 24 hours a day, 7 days a week

CHEMTREC Customer Number : CCN721187

Telephone number : +1 703 741 5970 (International)
+1 800 424 9300 (US & Canada)

Manufacturer / Supplier

American Pacific
10622 West 6400 North
Cedar City, UT 84721

Telephone: +1 (435) 865-5000
Fax: +1 (435) 865-5005

Use of substance/ preparation : Analytical chemistry, oxidizer in various propellant or explosive mixtures, automotive airbags, seatbelt pre-tensioners, fireworks, and road flares.

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : OXIDIZING SOLIDS - Category 1
ACUTE TOXICITY (oral) - Category 4
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : May cause fire or explosion; strong oxidizer.
Harmful if swallowed.
Causes serious eye irritation.
May cause damage to organs through prolonged or repeated exposure. (thyroid)

Precautionary statements

Prevention : Wear fire resistant or flame retardant clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from clothing and other combustible materials. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Do not touch eyes. Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection.

Section 2. Hazards identification

Response : In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. IF SWALLOWED: Rinse mouth. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Get medical help. If eye irritation persists: Get medical help. Get medical help if you feel unwell.

Storage : Store in a well-ventilated place. Store separately.

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

Other hazards which do not result in classification : None known.

Hazards identified when used : Based on known or expected use, no additional hazards are expected.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Synonyms : Not available.

Ingredient name	Identifiers	Conc. (% w/w)	GHS Classification
potassium perchlorate	CAS: 7778-74-7 EC: 231-912-9	100	OXIDIZING SOLIDS - Category 1 ACUTE TOXICITY (oral) - Category 4 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

Any concentration shown as a range is to protect confidentiality or is due to batch variation. If specific chemical identify is withheld, it is to protect confidentiality.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Get medical attention following exposure or if feeling unwell. 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 : Rinse immediately contaminated clothing and skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention following exposure or if feeling unwell. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 15 minutes.

Ingestion : 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. Get medical attention. If necessary, call a poison center or 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

Section 4. First aid measures

or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Airborne concentrations of potassium perchlorate can aggravate pre-existing respiratory problems. Chronic exposure may interfere with the uptake of iodine by the thyroid which may cause hypothyroidism.

Skin contact : No specific data.

Ingestion : Ingestion of large quantities has been reported to cause staggering in small mammals. Chronic ingestion of sufficient quantities may interfere with uptake of iodine by the thyroid which may cause hypothyroidism.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5. Fire-fighting measures

Extinguishing media : Contact professional fire-fighters immediately For small fires, do NOT use dry chemicals, carbon dioxide, halon or foams. USE WATER ONLY. For large fires, flood fire area with water from a distance. Contact with water or steam may produce toxic and flammable vapors.

Specific hazards arising from the chemical : Potassium perchlorate is an oxidizing agent and may cause rapid combustion or explosions if mixed with fuels, including organic materials or powdered metals. It is not usually a fire hazard as a result of the container if in a DOT approved shipping container suitable to contain potassium perchlorate including plastic drums or steel drums lined with plastic protective coating. Gross contamination of fiber drums, FIBC sacks, or other containers may cause a fire or explosion hazard if not kept in shipping condition and if contamination is allowed on the exterior surface.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
halogenated compounds
metal oxide/oxides

Special protective actions for fire-fighters : 1) Do not fight fires involving mixtures of potassium perchlorate and fuels. Potassium perchlorate is an oxidizing agent and may cause rapid combustion or explosions if mixed with fuels. 2) Burning potassium perchlorate may produce chlorine, chlorine dioxide, hydrogen chloride, and oxides of nitrogen as well as mixtures with any other compounds involved in the combustion. These are common by-products of combustion and are likely to be serious health concern; thus, keep upwind or wear self-contained breathing apparatus when attempting to rescue.

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.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe dust. Put on appropriate personal protective equipment.

For emergency responders : If specialized 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".

Environmental precautions : Avoid dispersal of spilled 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).

Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Oxidizing material. Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substances damp, using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from clothing, incompatible materials and combustible materials. Wear fire resistant clothing. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container.

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.

Conditions for safe storage, including any incompatibilities : 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. Separate from reducing agents and combustible 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. Do not store with reducing agents, organic materials, especially fuels, oils, greases, etc. Do not store with explosive substances that may detonate Do not store close to a heat source that could cause temperatures to approach the decomposition temperature.

Section 8. Exposure controls/personal protection

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits

Section 8. Exposure controls/personal protection

potassium perchlorate

ACGIH TLV (United States)
TWA: 10 mg/m³ (Inhalable particle).
TWA: 3 mg/m³ (Respirable particle).
OSHA PEL (United States)
TWA: 15 mg/m³ (Total dust).
TWA: 5 mg/m³ (Respirable fraction).

The above limits are for particulates not otherwise classified

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor 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.

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.

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: safety glasses with side-shields.

Skin protection

Hand protection : Type of glove recommended-Plastic, rubber or latex gloves are recommended. Leather or cotton gloves should not be used unless a management program is implemented to ensure detection of contamination and immediate cleaning and change in case of contamination. 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. 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.

Body protection : Avoid contamination of cotton or other absorbent material. As in any industrial working environment, workers should routinely wear clean clothes to work. Do not wear any work clothing that has become contaminated with potassium perchlorate. Remove contaminated clothing immediately and keep wet until thoroughly washed. Keeping contaminated clothing wet minimizes hazards until the laundering is completed. Showering is recommended after handling any industrial chemical. Smoking of tobacco should not be permitted while wearing contaminated clothing. Leather boots may become contaminated and could be a source of combustion damaging feet. Rubber boots are recommended unless a very strict management program to detect contaminated leather boots is in place much as listed on the glove section above

Section 8. Exposure controls/personal protection

Other skin protection : Wear impervious aprons or rain gear to reduce contamination of cotton or other fiber clothing. Plastic, rubber or latex gloves are recommended. Leather or cotton gloves should not be used unless a management program is implemented to ensure detection of contamination and immediate cleaning and change in case of contamination. Cotton clothing may be used if chance of contact is minimal or if clothing is monitored for contamination and changed if contamination occurs. In any case where combustible protection is used, a strong management system must be in place to monitor contamination and ensure appropriate removal and cleaning or severe risk of fire and personal injury or death exists. There are no known cloth materials that will not combust vigorously with perchlorates including nomex, Kevlar based materials, or clothing that is normally considered fire retardant or resistive. Observation and management of contamination is the only practicable safety measure.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid. [Deliquescent crystals.]

Color : White.

Odor : Odorless.

Odor threshold : Not available.

pH : 6 to 8 when dissolved in water

Melting point : Decomposes

Boiling point : Decomposes

Flash point : Not applicable.

Evaporation rate : Not applicable.

Flammability (solid, gas) : Not applicable

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

Vapor pressure : Not applicable.

Vapor density : Not applicable.

Density : 2.52 g/cm³

Relative density : 2.52

Molecular weight : 138.55

Solubility(ies) : Not available.

Solubility in water : 0.75 /100ml at 20°C
21.8g/100 ml at 100° C

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

Auto-ignition temperature : Not applicable.

Decomposition temperature : 400°C (752°F)

Viscosity : Kinematic (104°F (40°C)): Not available.

Explosive properties : Not available.

Oxidizing properties : Not available.

Section 10. Stability and reactivity

Reactivity : Do not mix with organic materials, reducing agents, metal powders or powdered carbon.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions may include the following:
contact with combustible materials
Reactions may include the following:
risk of explosion

Conditions to avoid : Avoid elevated temperatures over 400° C, which can cause spontaneous exothermic decomposition. Cloth fabric of any type including dust collector bags intimately contaminated with potassium perchlorate is subject to ignition through friction or impact. Water scrubber type dust collection systems are recommended. High-energy static electricity may also serve as an ignition source when contamination or combustibles are intermixed.

Incompatible materials : Highly reactive or incompatible with the following materials:
combustible materials
reducing materials
Sulfuric acid, powdered metals, and intimate mixtures with organics

Hazardous decomposition products : Chlorine
Chlorine dioxide
Oxygen
nitrogen oxides
Hydrogen chloride

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Result	Dose	Remarks
potassium perchlorate	OECD 402 [Acute Dermal Toxicity]	Rat - Dermal - LD50	>2000 mg/kg	Based on data for a similar substance.

Conclusion/Summary : Harmful if swallowed.

Irritation/Corrosion

Product/ingredient name	Test	Result	Remarks
potassium perchlorate	OECD 404 [Acute Dermal Irritation/Corrosion]	Rabbit - Skin - Not irritant	Based on data for a similar substance.
	OECD 405 [Acute Eye Irritation/ Corrosion]	Rabbit - Eyes - Irritant	Based on data for a similar substance.

Conclusion/Summary

Skin : Not available.

Eyes : Causes serious eye irritation.

Respiratory : Not available.

Respiratory or skin sensitization

Product/ingredient name	Test	Result	Remarks
potassium perchlorate	OECD 429 [Skin Sensitization: Local Lymph Node Assay]	Mouse - skin Not sensitizing	Based on data for a similar substance.

Conclusion/Summary

Skin : Not available.

Respiratory : Not available.

Germ cell mutagenicity

Section 11. Toxicological information

Product/ingredient name	Test	Result	Remarks
potassium perchlorate	OECD 471 [Bacterial Reverse Mutation Test] OECD 476 [In vitro Mammalian Cell Gene Mutation Test] None available.	In vitro - Bacteria Negative In vitro - Mammalian-Animal Negative In vivo - Mammalian-Animal Negative	Based on data for a similar substance. Based on data for a similar substance. Based on data for a similar substance.

Conclusion/Summary : Not available.

Carcinogenicity

Product/ingredient name	Test	Result	Remarks
Not available.			

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Test	Species	Result	Remarks
potassium perchlorate	None available.	Rat - Oral	Maternal toxicity: Positive Fertility effects: Negative Developmental: Negative	Based on data for a similar substance.

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
potassium perchlorate	Category 2	oral	thyroid

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Airborne concentrations of potassium perchlorate can aggravate pre-existing respiratory problems. Chronic exposure may interfere with the uptake of iodine by the thyroid which may cause hypothyroidism.

Skin contact : No specific data.

Ingestion : Ingestion of large quantities has been reported to cause staggering in small mammals. Chronic ingestion of sufficient quantities may interfere with uptake of iodine by the thyroid which may cause hypothyroidism.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Section 11. Toxicological information

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	Test	Result	Remarks
potassium perchlorate	OECD 408 [Repeated Dose 90-Day Oral Toxicity Study in Rodents]	Sub-chronic - Rat - Oral - NOAEL 1.18 mg/kg	Based on data for a similar substance.

Conclusion/Summary : Not available.

General : May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Product/ingredient name	Test	Result	Species	Remarks
potassium perchlorate		Acute - LC50 1655 mg/l [96 hours]	Fish - *Pimephales promelas*	
	OECD [Daphnia sp. Acute Immobilization Test and Reproduction Test]	Acute - EC50 >100 mg/l [48 hours]	Crustaceans - *Daphnia magna*	
	OECD [Alga, Growth Inhibition Test]	Acute - EC50 >100 mg/l [72 hours]	Algae - *Raphidocelis subcapitata*	
	OECD [Alga, Growth Inhibition Test]	Chronic - EC10 >100 mg/l [72 hours]	Algae - *Raphidocelis subcapitata*	
	OECD [Activated Sludge, Respiration Inhibition Test]	EC50 383.5 mg/l [3 hours]	Micro-organism	
		Chronic - NOEC 11.48 mg/l [12 weeks]	Fish - *Danio rerio*	Based on data for a similar substance.

Conclusion/Summary : Not available.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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 spilled material and runoff and contact with soil, waterways, drains and sewers. Is the unused product a RCRA hazardous waste if discarded? Yes –if discarded as a solid and not in solution. If discarded as a solution carefully evaluate before any determination of waste status to avoid misinterpretation. Caution:

Section 13. Disposal considerations

Intentionally placing solid material into solution to dispose of it may violate several regulations if not managed carefully thereafter. Various states have local regulations that are applicable and are changing. Evaluate carefully all applicable regulations for your location before determining status and method of disposal!

If yes, the RCRA ID number is: D001

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method. Follow all rules and recommendations of the EC member state in which product is used. Potassium perchlorate should be disposed as a solid to either a hazardous waste landfill, in the US. Similar regulations apply to the EU and other parts of the world. Do not dispose of potassium perchlorate where it is likely to contact water and dissolve and then enter the environment.Verify the local state (country) requirements where the material is sited before disposing. If transported to another country (state), additional regulations may apply. In any case, manage disposal to protect persons and the environment The information offered in section 13 is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN1489	UN1489	UN1489	UN1489
UN proper shipping name	Potassium perchlorate	Potassium perchlorate	Potassium perchlorate	Potassium perchlorate
Transport hazard class(es)	5.1 	5.1 	5.1 	5.1 
Packing group	II	II	II	II
Environmental hazards	No.	No.	No.	No.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

Notice to reader : The above transport information is provided to assist in the proper classification of this product and may not be suitable for all shipping conditions.

Section 15. Regulatory information

United States

TSCA 5(a)2 final significant new use rules

None of the components are listed.

TSCA 5(a)2 proposed significant new use rules

None of the components are listed.

TSCA 5(e) substance consent order

None of the components are listed.

Section 15. Regulatory information

TSCA 6 final risk management
None of the components are listed.

TSCA 12(b) - Chemical export notification
None of the components are listed.

SARA 302/304
None of the components are listed.

SARA 304 RQ : Not applicable.

Canada

Canada Significant New Activity Notice : None of the components are listed.

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Singapore

Singapore - hazardous chemicals under government control
None.

Korea

K-REACH/CCA - Banned : None of the components are listed.

K-REACH/Article 39 (Accident Precaution Chemicals) : The following components are listed: Potassium perchlorate

Dangerous Materials Safety Management Act : Not applicable.

International regulations

Montreal Protocol
Not listed.

Stockholm Convention on Persistent Organic Pollutants
Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals
Not listed.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



National Fire Protection Association (U.S.A.)



Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations
WOE = Weight of Evidence

Indicates information that has changed from previously issued version.

Notice to reader

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