

SAFETY DATA SHEET

1. IDENTIFICATION OF SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Trade Name: Norchem EC564
Product Synonyms: Cold solvent cleaner
Recommended Use: Removal of oil, grease, dirt, wax and carbon particles from electric motors, generators, electrical components, metal parts, etc.
Company Identification: Goldcrest International Singapore Pte Ltd
38 Tech Park Crescent
Singapore 638098
Emergency phone number: (65) 6862 6006 Tel
(65) 6863 3665 Fax

2. HAZARDS IDENTIFICATION

2.1 GHS Classification

PHYSICAL HAZARDS:

Flammable Liquids Category 3

HEALTH HAZARDS:

Skin corrosion - Category 2

Serious eye damage/eye irritation – Category 2A

Germ cell mutagenicity - Category 2

Carcinogenicity - Category 1B

Reproductive toxicity - Category 1B

STOT (Single Exposure) Category 3

STOT (Repeat Exposure) - Category 1

Aspiration Hazard - Category 2

ENVIRONMENT

Acute aquatic toxicant - Category 2

Chronic aquatic toxicant - Category 2

2.2 GHS Label elements, including precautionary statements

PICTOGRAM



SIGNAL WORD

Danger

PHYSICAL HAZARDS:

H226 Flammable liquid and vapour

HEALTH HAZARDS:

H315 Causes skin irritation

H319 Causes serious eye irritation

H341 Suspected of causing genetic defects

H350 May cause cancer

H336 May cause drowsiness or dizziness

H372 Causes damage to organs through prolonged or repeated exposure

H305 May be harmful if swallowed and enters airways

ENVIRONMENTAL HAZARDS

H401 Toxic to aquatic life

H411 Toxic to aquatic life with long lasting effects

Prevention

P210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

P233 Keep container tightly closed. – if the liquid is volatile and may generate an explosive atmosphere.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P264 Wash ... thoroughly after handling.

First-aid measures after eye contact

When in contact with the eyes: Immediately hold eyelids apart and flush the eye continuously with running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Continue flushing for at least 15 minutes. Transport to hospital or doctor without delay. Removal of contact lenses only be undertaken by skilled personnel.

First-aid measures after ingestion

For advice, contact a Poisons Information Centre or a doctor at once. Urgent hospital treatment is likely needed. If swallowed do NOT induce vomiting. If vomiting occurs, lean patient forward or place on left side to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Transport to hospital or doctor without delay

4.2. Most important symptoms and effects, both acute and delayed

No information

4.3. Indication of any immediate medical attention and special treatment needed

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:

Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.

Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ 50 mm Hg) should be intubated.

Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.

A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.

Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with

Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology]

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

Gastric lavage should only be carried out after endotracheal intubation, in view of the risk of aspiration. * As recommended by Mobil Product Health and Safety Guide (July 1987)

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Water spray or fog. Foam (Alcohol-resistant foam). Dry chemical powder. Carbon dioxide.
Unsuitable Do not use direct water jet..

5.2. Special hazards arising from the substance or mixture

Fire hazard Prevent runoff from fire fighting or dilution from entering drains or water courses.
Smoke, fume and incomplete combustion products, oxides of carbon are generated during a fire emergency.

Fire Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as
Incompatibility ignition may result

Combustion HAZARDOUS COMBUSTION PRODUCT OR GASES Hydrogen chloride, phosgene.
Products:

5.3. Special protective actions for fire-fighters

Fire Fighting

Alert Fire Brigade and tell them location and nature of hazard.
May be violently or explosively reactive.
Wear breathing apparatus plus protective gloves in the event of a fire.
Prevent, by any means available, spillage from entering drains or water course.
Consider evacuation (or protect in place).
Fight fire from a safe distance, with adequate cover.
If safe, switch off electrical equipment until vapour fire hazard removed.
Use water delivered as a fine spray to control the fire and cool adjacent area.
Avoid spraying water onto liquid pools.
Do not approach containers suspected to be hot.
Cool fire exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire

Fire/Explosion Hazard

Hot organic vapours or mist are capable of sudden spontaneous combustion when mixed with air even at temperatures below their published autoignition temperatures.

The temperature of ignition decreases with increasing vapour volume and vapour/air contact times and is influenced by pressure change.

Ignition may occur under elevated-temperature process conditions especially in processes performed under vacuum subjected to sudden ingress of air or in processes performed at elevated pressure, where sudden escape of vapours or mists to the atmosphere occurs.

Liquid and vapour are flammable.

Moderate fire hazard when exposed to heat or flame. Vapour forms an explosive mixture with air.

Moderate explosion hazard when exposed to heat or flame.

Vapour may travel a considerable distance to source of ignition.

Heating may cause expansion or decomposition leading to violent rupture of containers.

On combustion, may emit toxic fumes of carbon monoxide (CO).

Combustion products include: carbon monoxide (CO), carbon dioxide (CO₂), other pyrolysis products typical of burning organic material. May emit clouds of acrid smoke.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	Gloves. Face-shield. Corrosion-proof suit. Large spills/in enclosed spaces: compressed air apparatus, gas-tight suit. Reactivity hazard: compressed air/oxygen apparatus, gas-tight suit.
Emergency procedures	Mark the danger area. No naked flames. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation. Large spills/in confined spaces: consider evacuation.

6.1.2. For emergency responders

Protective equipment	Equip cleanup crew with proper protection.
Emergency procedures	Stop leak if safe to do so. Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

Protective Measures:

Eliminate all sources of ignition in the vicinity of the spill or released vapor.

If this material is released into the work area, evacuate the area immediately.

Monitor area with combustible gas indicator.

Spill Management:

Stop the source of the release if you can do it without risk.

Contain release to prevent further contamination of soil, surface water or groundwater.

Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection.

Use appropriate techniques such as applying non-combustible absorbent materials or pumping.

All equipment used when handling the product must be grounded.

A vapor suppressing foam may be used to reduce vapors.

Use clean non-sparking tools to collect absorbed material.

Where feasible and appropriate, remove contaminated soil.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Safe handling

Wear protective clothing when risk of exposure occurs. Avoid contact with skin and eyes.

Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials.

Material can accumulate static charges which may cause an electric spark. Use in a well-ventilated area.

Use bonding/earthing however may not eliminate the hazard from static accumulated. Consult local standards.

When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use.

Avoid physical damage to containers. Always wash hands with soap and water after handling.

Work clothes should be laundered separately. Launder contaminated clothing before re-use.

Use good occupational work practice.

Advice on protection against fire and explosion

Use explosion-proof equipment. Provide sufficient air exchange and/or exhaust in work rooms. Keep

Keep away from open flames, hot surfaces and sources of ignition.

Empty container may contain residual liquid and vapour which may ignite in the present of an electric spark.

Other information

Store in original containers. Keep containers securely sealed. Store in a cool, dry, well-ventilated area.

Store away from incompatible materials and foodstuff containers.

Protect containers against physical damage and check regularly for leaks.

Observe manufacturer's storage and handling recommendations contained within this MSDS.

WARNING! Do not use as portable heater or appliance fuel. Toxic fumes may accumulate and cause death.

7.2 Conditions for safe storage, including any incompatibilities

Suitable container

Packing as supplied by manufacturer.

Plastic containers may only be used if approved for flammable liquid. Check that containers are clearly labelled and free from leaks.

For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) :

Where a can is to be used as an inner package, the can must have a screwed enclosure.

For materials with a viscosity of at least 2680 cSt. (23 deg. C)

For manufactured product having a viscosity of at least 250 cSt. (23 deg. C)

Manufactured product that requires stirring before use and having a viscosity of at least 20 cSt (25 deg. C):

(i) Removable head packaging; (ii) Cans with friction closures

and (iii) low pressure tubes and cartridges may be used.

Where combination packages are used, and the inner packages are of glass,

there must be sufficient inert cushioning material in contact with inner and outer packages

In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient

inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box

and the substances are not incompatible with the plastic.

Storage incompatibility

Avoid reaction with oxidising agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

GENERAL CONSIDERATIONS:

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

8.1 Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

Component	Source	TWA	STEL	Ceiling	Notation
Trichloroethylene	ACGIH	10 mg/m ³	25mg/m ³	--	--
Kerosene	SPELoTS	5 mg/m ³	10 mg/m ³	--	--
Sulfur	SPELoTS	10 mg/m ³	--	--	--

MATERIAL DATA

Kerosene - Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

Kerosene - OSHA (USA) concluded that exposure to sensory irritants can: cause inflammation cause increased susceptibility to other irritants and infectious agents lead to permanent injury or dysfunction permit greater absorption of hazardous substances and acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

for kerosene CAS 8008-20-6

TLV TWA: 100 mg/m³ as total hydrocarbon vapour Skin

A3 OEL TWA: 14 ppm, 100 mg/m³ [NIOSH, 1985]

REL TWA: 150 ppm [Shell] CEL TWA: 300 ppm, 900 mg/m³

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin. Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation. Contact with eyes and mucous membranes may also contribute to overall exposure and may also invalidate the exposure standard.

CAUTION: This substance has been classified by the ACGIH as A3 Animal Carcinogen (at relatively high doses)

NOTE M: The classification as a carcinogen need not apply if it can be shown that the substance contains less than 0.005% w/w benzo[a]pyrene (EINECS No 200-028-5). This note applies only to certain complex oil-derived substances in Annex IV.

European Union (EU) List of harmonised classification and labelling hazardous substances, Table 3.1, Annex VI, Regulation (EC) No 1272/2008 (CLP) - up to the latest ATP

8.2 Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. An approved self contained breathing apparatus (SCBA) may be required in some situations. Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Materials for protective clothing

Hand protection	The type of gloves suitable for this material include chemical resistant gloves: Nitrile. Gloves suitability will depend on breakthrough time and conditions of use, may vary from supplier to supplier. Contact your nearest manufacturer for specific advice on glove.
Eye protection	Face shield, goggles
Skin and body protection	Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.
Respiratory protection	Respiratory protection: Suitable respiratory equipment: Approved respirators according to regulatory requirements if applicable. Type A filter material with half face filter respirator. If air quality falls below air purifying filter requirements, or if high airborne concentrations exist, use an approved supplied-air respirators operate in positive pressure mode or a self contained breathing apparatus is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

PHYSICAL PROPERTIES

Appearance:	Physical State	Liquid
	Colour	Blue or colourless
Odour		Not Available
Odour threshold;		Not available
pH (100%)		Not available
Melting Point:		Not available
Boiling Point:		Not available
Flash point:		>46°C
Evaporation Rate:		Not available
Flammability (solid, gas);		Not available
Flammable Limits (Approximate volume % in air): LEL & UEL:		Not available
Vapour Pressure:		Not available
Vapour density:		Not available
Specific Gravity		
Solubility In Water		Not available
Partition coefficient: n-octanol/water;		Not available
Auto-ignition temperature:		Not available
Decomposition Temperature:		Not available
Viscosity		4 mPa.s @ 25°C

9.2 Other information

Not available

10. STABILITY AND REACTIVITY

10.1 Reactivity	No dangerous reaction known under conditions of normal use.
10.2 Chemical Stability	Stable
10.3 Hazardous Reaction	Hazardous polymerisation will not occur.
10.4 Conditions To Avoid	May react violently with alkali and alkaline earth metals such as sodium, potassium and barium. Avoid mixing with caustic soda, caustic potash, or oxidizing materials.
10.5 Incompatible Materials	May react violently with alkali and alkaline earth metals such as sodium, potassium and barium. Avoid mixing with caustic soda, caustic potash, or oxidizing materials.
10.6 Hazardous Decomposition Products	Hydrogen chloride, phosgene. Risk of flash and explosion in the case of contact high energy or oxygen in concentrated amount atmosphere. May form toxicity gases by decomposition. The substance decomposes on contact with strong alkali producing dichloroacetylene, which increases fire hazard. Reacts violently with metal powders such as magnesium, aluminium, titanium and barium. Slowly decomposed by light in presence of moisture, with formation of corrosive hydrochloric acid.

11. TOXICOLOGICAL INFORMATION

11.1 Toxicological information

Ingredients																							
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Reproductive toxicity;	<p>Not classified Kerosene - Repeated exposure of pregnant rats to high concentrations of toluene (around or exceeding 1000 ppm) can cause developmental effects, such as lower birth weight and developmental neurotoxicity, on the foetus. However, in a two-generation reproductive study in rats exposed to gasoline vapour condensate, no adverse effects on the foetus were observed.</p>																						
STOT-single exposure;	<p>Category 3 Trichloroethylene - The most famous symptom of acute intoxication is narcotic action. Many fatal accidents were reported. Repeated exposure can damage the liver and kidneys.</p>																						
STOT-repeated exposure;	<p>Category 2 Kerosene - Multiple repeat-dose toxicity studies have been reported on a variety of kerosenes or jet fuels. When applied dermally, kerosenes and jet fuels have been shown to produce dermal and systemic effects</p>																						
Aspiration hazard	<p>Category 2 No information.</p>																						

Potential health effects

Inhalation (Kerosene) of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system. Inhalation hazard is increased at higher temperatures. High inhaled concentrations of mixed hydrocarbons may produce narcosis characterised by nausea, vomiting and lightheadedness. Inhalation of aerosols may produce severe pulmonary oedema, pneumonitis and pulmonary haemorrhage. Inhalation of petroleum hydrocarbons consisting substantially of low molecular weight species (typically C2-C12) may produce irritation of mucous membranes, incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and anaesthetic stupor. Massive exposures may produce central nervous system depression with sudden collapse and deep coma; fatalities have been recorded. Irritation of the brain and/or apnoeic anoxia may produce convulsions. Although recovery following overexposure is generally complete, cerebral micro-haemorrhage of focal post-inflammatory scarring may produce epileptiform seizures some months after the exposure. Pulmonary episodes may include chemical pneumonitis with oedema and haemorrhage. The lighter hydrocarbons may produce kidney and neurotoxic effects. Pulmonary irritancy increases with carbon chain length for paraffins and olefins. Alkenes produce pulmonary oedema at high concentrations. Liquid paraffins may produce anaesthesia and depressant actions leading to weakness, dizziness, slow and shallow respiration, unconsciousness, convulsions and death. C5-7 paraffins may also produce polyneuropathy. Aromatic hydrocarbons accumulate in lipid rich tissues (typically the brain, spinal cord and peripheral nerves) and may produce functional impairment manifested by nonspecific symptoms such as nausea, weakness, fatigue and vertigo; severe exposures may produce inebriation or unconsciousness. Many of the petroleum hydrocarbons are cardiac sensitisers and may cause ventricular fibrillations. Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal. Acute effects from inhalation of high vapour concentrations may be chest and nasal irritation with coughing, sneezing, headache and even nausea.

Ingestion (Kerosene): Swallowing of the liquid may cause aspiration of vomit into the lungs with the risk of haemorrhaging, pulmonary oedema, progressing to chemical pneumonitis; serious consequences may result. Signs and symptoms of chemical (aspiration) pneumonitis may include coughing, gasping, choking, burning of the mouth, difficult breathing, and bluish coloured skin (cyanosis). Accidental ingestion of the material may be damaging to the health of the individual. Ingestion of petroleum hydrocarbons may produce irritation of the pharynx, oesophagus, stomach and small intestine with oedema and mucosal ulceration resulting; symptoms include a burning sensation in the mouth and throat. Large amounts may produce narcosis with nausea and vomiting, weakness or dizziness, slow and shallow respiration, swelling of the abdomen, unconsciousness and convulsions. Myocardial injury may produce arrhythmias, ventricular fibrillation and electrocardiographic changes. Central nervous system depression may also occur. Light aromatic hydrocarbons produce a warm, sharp, tingling sensation on contact with taste buds and may anaesthetise the tongue. Aspiration into the lungs may produce coughing, gagging and a chemical pneumonitis with pulmonary oedema and haemorrhage.

Skin (Kerosene): The material produces moderate skin irritation; evidence exists, or practical experience predicts, that the material either produces moderate inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant, but moderate, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Open cuts, abraded or irritated skin should not be exposed to this material. The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use. The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives. The material may accentuate any pre-existing dermatitis condition. Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Eyes (Kerosene): Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur. Petroleum hydrocarbons may produce pain after direct contact with the eyes. Slight, but transient disturbances of the corneal epithelium may also result. The aromatic fraction may produce irritation and lachrymation.

Chronic (Kerosene): Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Repeated or prolonged exposure to mixed hydrocarbons may produce narcosis with dizziness, weakness, irritability, concentration and/or memory loss, tremor in the fingers and tongue, vertigo, olfactory disorders, constriction of visual field, paraesthesias of the extremities, weight loss and anaemia and degenerative changes in the liver and kidney. Chronic exposure by petroleum workers, to the lighter hydrocarbons, has been associated with visual disturbances, damage to the central nervous system, peripheral neuropathies (including numbness and paraesthesias), psychological and neurophysiological deficits, bone marrow toxicities (including hypoplasia possibly due to benzene) and hepatic and renal involvement. Chronic dermal exposure to petroleum hydrocarbons may result in defatting which produces localised dermatoses. Surface cracking and erosion may also increase susceptibility to infection by microorganisms. One epidemiological study of petroleum refinery workers has reported elevations in standard mortality ratios for skin cancer along with a dose-response relationship indicating an association between routine workplace exposure to petroleum or one of its constituents and skin cancer, particularly melanoma. Other studies have been unable to confirm this finding. Chronic solvent inhalation exposures may result in nervous system impairment and liver and blood changes. [PATTYS]

12. ECOLOGICAL INFORMATION

12.1 Toxicity

	Ingredients		
	Trichloroethylene 79-01-6	kerosene, (petroleum), hydrodesulfurised 64742-94-5	sulfur 7704-34-9
Aquatic toxicity			
Acute	Category 2	Not Classified	Not Classified
Chronic	Category 2	Not Classified	Not Classified
Fish			
LC50	Guppy	Fish	Fish
(h) (d)	7 days	NOEC	96h
mg/l , pH	55 ppm	1mg/L	14mg/l
Crustacea			
LC50	No data	No data	Crustacea
(h)	available	available	48h
mg/l			>0.005mg/l
Invertebrate			
EC50	No data	No data	No data
(h)	available	available	available
mg/l			
Micro-organisms			
IC50 (h)	No data	No data	No data
mg/l	available	available	available

12.2 Persistence and degradability: Biodegradability

Ingredient	Persistence: Water/Soil	Persistence: Air
sulfur	LOW	LOW

12.3 Bioaccumulative potential: Bioaccumulation

Ingredient	Bioaccumulation
Trichloroethylene	concentration factor: <17/6weeks
kerosene, (petroleum), hydrodesulfurised	LOW (BCF = 159)
sulfur	LOW (LogKOW = 0.229)

12.4 Mobility in soil: Distribution among environment compartments

Ingredient	Mobility
sulfur	LOW (KOC = 14.3)

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects: Additional ecological information

Ingredient: Trichloroethylene The life time in the air : 0.018year (estimation)
Global warming potential (CFC11=1) :<0.001 (estimation)

Do not allow to enter soil, waterways or waste water channels. Do not release untreated into natural waters.

13. DISPOSAL CONSIDERATION

13.1 Disposal methods

Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Consult manufacturer for recycling options or consult local or regional waste management authority for disposal.

If disposal is necessary, do not dispose into sewage. Consult local, state and federal regulations.

For the safety of persons conducting disposal, recycling or reclamation activities, please refer to Section 8.

Disposed of by approved facilities or licence waste collector. Observe all local and national regulations.

Empty Container Warning (where applicable):

Empty containers may contain residue and can be dangerous. Return to supplier for reuse/ recycling if possible.

Empty containers should be taken for recycling, recovery, or disposal through qualified or licensed facility.

Observe all label safeguards until containers are cleaned and destroyed.

14. TRANSPORT INFORMATION

	<i>ADR, RID, ADN</i>	<i>IMDG</i>	<i>IATA</i>
14.1 UN number	UN 1992	UN 1992	UN 1992
14.2 UN proper shipping name	FLAMMABLE LIQUID, TOXIC, N.O.S (Trichloroethylene, Kerosene) boiling point ≤ 60°C	FLAMMABLE LIQUID, TOXIC, N.O.S (Trichloroethylene, Kerosene) boiling point ≤ 60°C	FLAMMABLE LIQUID, TOXIC, N.O.S (Trichloroethylene, Kerosene) boiling point ≤ 60°C
14.3 Transport hazard class(es)	3, 6.1	3, 6.1	3, 6.1
14.4 Packaging group	III	III	III
14.5 Environmental hazards	No data	Marine pollutant: Yes	No data
14.6 Special precautions for user		No Information	
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code.			No information available

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

Ingredients

Ingredients are on the inventory	Trichloroethylene 79-01-6	kerosene, (petroleum), hydrodesulfurised 64742-94-5
TSCA	Yes	Yes
DSL	No Information	Yes
EINECS	No Information	Yes
AICS	No Information	Yes
ISHL	No Information	No Information
KECI	No Information	Yes
IECSC	No Information	Yes
NZIoC:	No Information	Yes
PICCS	No Information	Yes
NEA	No Information	No Information

KEROSENE(8008-20-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC	Monographs
Singapore Permissible Exposure Limits of Toxic Substances	

SULFUR(7704-34-9.) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC	Monographs
Singapore Permissible Exposure Limits of Toxic Substances	

Mixture : EB575

Montreal Protocol	Not Listed
Stockholm Convention	Not Listed
Rotterdam Convention	Not Listed

16. OTHER INFORMATION

Goldcrest International Pte. Ltd. provides the information contained herein in good faith, but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Goldcrest International warrants that this product is of merchantable quality. The implied warranty of fitness for a purpose or uses described on the product's label or in any written instructions or materials distributed to the buyer by Goldcrest International and is hereby disclaimed should buyer use the products in a manner inconsistent with this uses or purposes described therein. In no event shall Goldcrest International Pte. Ltd. be liable for any consequential, exemplary, or incidental damages incurred by buyer even if it has been advised of the possibility of such damages.

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH[®] = The American Conference of Governmental Industrial Hygienists

SPELoTS = Singapore Permissible Exposure Limits of Toxic Substances

PEL = Permissible Exposure Level determined by the Occupational Safety and Health Administration (OSHA)

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures OSHA

STEL = Short Term Exposure Limits are based on 15-minute exposures

CEL = Chemwatch Exposure Limit

TSCA	United States TSCA Inventory
DSL	Canadian Domestic Substances List
EINECS	European Inventory of Existing Commercial Chemical Substances
AICS	Australia Inventory of Chemical Substances
ISHL	Japan - Inventory of Chemical Substances
KECI	Korean Existing Chemicals Inventory
IECSC	Inventory of Existing Chemical Substances in China
NZIoC:	New Zealand. Inventory of Chemical Substances
PICCS	Philippines Inventory of Chemicals and Chemical Substances
NEA	Singapore - National Environment Agency

This Safety Data Sheet was prepared in accordance to United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS, 2013)

Date Issued: 5 Nov 2016

End of Safety Data Sheet