SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product name	:	KONSTRUKT® GREY ZINC (AEROSOL)
Product code	:	KONS-CG-400G
Proper shipping name	:	AEROSOLS

Manufacturer or supplier's details

Company	:	Synergy Business Systems Pty Ltd
Address	:	Suite 2, Level 7, 104 Melbourne Street, South Brisbane, QLD 4101
Telephone	:	1300 161 872
Emergency telephone number	:	131 126
Website	:	www.synergysystems.com.au
Poisons Information Centre	:	131 126

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

Relevant identified uses	:	Galvanising spray. Application is by spray atomisation from a hand held aerosol pack.
Restrictions on use	:	Use according to manufacturer's directions.

SECTION 2 HAZARDS IDENTIFICATION

Classification	:	HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.
Chemwatch Hazard Ratings	:	Flammability (4) = Extreme Toxicity (2) = Moderate Body Contact (2) = Moderate Reactivity (2) = Moderate Chronic (1) = Low
Poisons Schedule	:	Not applicable
Classification (1)	:	Flammable Aerosols Category 1, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Specific target organ toxicity - single exposure Category 3 (narcotic effects), Acute Aquatic Hazard Category 3, Chronic Aquatic Hazard Category 2
Legend	:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s) :

Signal word : Danger

Hazard Statements : H222 | Extremely flammable aerosol.
H312 | Harmful in contact with skin
H315 | Causes skin irritation.
H319 | Causes serious eye irritation.
H336 | May cause drowsiness or dizziness.
H411 | Toxic to aquatic life with long lasting effects.
AUH044 | Risk of explosion if heated under confinement.

Precautionary Statements Prevention : P210 | Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P211 | Do not spray on an open flame or other ignition source.
P251 | Pressurized container: Do not pierce or burn, even after use.
P271 | Use only outdoors or in a well-ventilated area.
P261 | Avoid breathing mist/vapours/spray.
P273 | Avoid release to the environment.
P280 | Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements Response : P321 | Specific treatment (see advice on this label).
P322 | Specific measures (see advice on this label).
P362 | Take off contaminated clothing and wash before reuse.
P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 | Call a POISON CENTER or doctor/physician if you feel unwell.
P337+P313 | If eye irritation persists: Get medical advice/attention.
P391 | Collect spillage.
P302+P352 | IF ON SKIN: Wash with plenty of water and soap.
P304+P340 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P332+P313 | If skin irritation occurs: Get medical advice/attention.

Precautionary Statements Storage : P405 | Store locked up.
P410+P412 | Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P403+P233 | Store in a well-ventilated place. Keep container tightly closed.

Precautionary Statements Disposal : P501 | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances : See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
1330-20-7	10-30	xylene
Not Available	NotSpec	resin
67-64-1	1-10	acetone
7440-66-6	30-60	zinc powder
115-10-6	10-30	dimethyl ether

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact
: If aerosols come in contact with the eyes: Immediately hold the eyelids apart and flush the eye continuously for at least 15 minutes with fresh 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.
: Transport to hospital or doctor without delay.
: Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact
: If solids or aerosol mists are deposited upon the skin:
: Flush skin and hair with running water (and soap if available). Remove any adhering solids with industrial skin cleansing cream. DO NOT use solvents.
: Seek medical attention in the event of irritation.

Inhalation
: If aerosols, fumes or combustion products are inhaled: Remove to fresh air.
: Lay patient down. Keep warm and rested.
: Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
: If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
: Transport to hospital, or doctor.

Ingestion
: Avoid giving milk or oils.
: Avoid giving alcohol.
: Not considered a normal route of entry.
: If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

For acute or short term repeated exposures to xylene:
: Gastro-intestinal absorption is significant with ingestions. For ingestions exceeding 1-2 ml (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The
: use of charcoal and cathartics is equivocal.
: Pulmonary absorption is rapid with about 60-65% retained at rest.
: Primary threat to life from 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 or $pCO2 > 50$ 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 aminophylline a second choice.

SECTION 4 FIRST AID MEASURES (CONTINUED)

Biological Exposure Index - BEI: These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time
Methylhippu-ric acids in urine	1.5 gm/gm creatinine	End of shift
	2 mg/min	Last 4 hrs of shift

Absorption of zinc compounds occurs in the small intestine.

: The metal is heavily protein bound.
: Elimination results primarily from faecal excretion.
: The usual measures for decontamination (Ipecac Syrup, lavage, charcoal or cathartics) may be administered, although patients usually have sufficient vomiting not to require them.
: CaNa2EDTA has been used successfully to normalise zinc levels and is the agent of choice. *[Ellenhorn and Barceloux: Medical Toxicology]*

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media
: SMALL FIRE: Water spray, dry chemical or CO2
: LARGE FIRE: Water spray or fog.

Special hazards arising from the substrate or mixture

Fire Incompatibility
: Reacts with acids producing flammable / explosive hydrogen (H2) gas
: Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

Advice for firefighters

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.
: Prevent, by any means available, spillage from entering drains or water course.
: If safe, switch off electrical equipment until vapour fire hazard removed.
: Use water delivered as a fine spray to control fire and cool adjacent area.
: **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.
: Equipment should be thoroughly decontaminated after use.

Fire/Explosion Hazard
: Liquid and vapour are highly flammable.
: Severe fire hazard when exposed to heat or flame.
: Vapour forms an explosive mixture with air.
: Severe explosion hazard, in the form of vapour, when exposed to flame or spark.
: Vapour may travel a considerable distance to source of ignition.
: Heating may cause expansion or decomposition with violent container rupture.
: Aerosol cans may explode on exposure to naked flames.
: Rupturing containers may rocket and scatter burning materials.
: Hazards may not be restricted to pressure effects.
: May emit acrid, poisonous or corrosive fumes.
: On combustion, may emit toxic fumes of carbon monoxide (CO).
: Combustion products include:
- carbon dioxide (CO2)
- other pyrolysis products typical of burning organic material.

SECTION 5 FIREFIGHTING MEASURES (CONTINUED)

: **Contains low boiling substance**: Closed containers may rupture due to pressure buildup under fire conditions. Carbon monoxide (CO)

HAZCHEM: Not applicable

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
See section 8
Environmental precautions
See section 12
Methods and material for containment and cleaning up

Minor Spills
: Clean up all spills immediately.
: Avoid breathing vapours and contact with skin and eyes.
: Wear protective clothing, impervious gloves and safety glasses.
: Shut off all possible sources of ignition and increase ventilation.
: Wipe up.
: If safe, damaged cans should be placed in a container outdoors, away from all ignition sources, until pressure has dissipated.
: Undamaged cans should be gathered and stowed safely.

Major Spills
: DO NOT exert excessive pressure on valve; DO NOT attempt to operate damaged valve.
: Clear area of personnel and move upwind.
: Alert Fire Brigade and tell them location and nature of hazard.
: May be violently or explosively reactive.
: Wear breathing apparatus plus protective gloves.
: Prevent, by any means available, spillage from entering drains or water courses.
: No smoking, naked lights or ignition sources.
: Increase ventilation.
: Stop leak if safe to do so.
: Water spray or fog may be used to disperse / absorb vapour.
: Absorb or cover spill with sand, earth, inert materials or vermiculite.
: If safe, damaged cans should be placed in a container outdoors, away from ignition sources, until pressure has dissipated.
: Undamaged cans should be gathered and stowed safely.
: Collect residues and seal in labelled drums for disposal.
: Remove leaking cylinders to a safe place if possible.
: Release pressure under safe, controlled conditions by opening the valve.

Personal Protective Equiptment is contained in section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling
: DO NOT allow clothing wet with material to stay in contact with skin
: Avoid all personal contact, including inhalation.
: Wear protective clothing when risk of exposure occurs.
: Use in a well-ventilated area.
: Prevent concentration in hollows and sumps.
: DO NOT enter confined spaces until atmosphere has been checked.
: Avoid smoking, naked lights or ignition sources.
: Avoid contact with incompatible materials.

SECTION 7 HANDLING AND STORAGE (CONTINUED)

: When handling, DO NOT eat, drink or smoke.
: DO NOT incinerate or puncture aerosol cans.
: DO NOT spray directly on humans, exposed food or food utensils.
: Avoid physical damage to containers.
: Always wash hands with soap and water after handling.
: Work clothes should be laundered separately.
: Use good occupational work practice.
: Observe manufacturer's storage and handling recommendations contained within this SDS.
: Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Other information

: Keep dry to avoid corrosion of cans. Corrosion may result in container perforation and internal pressure may eject contents of can
: Store in original containers in approved flammable liquid storage area.
: DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
: No smoking, naked lights, heat or ignition sources.
: Keep containers securely sealed. Contents under pressure.
: Store away from incompatible materials.
: Store in a cool, dry, well ventilated area.
: Avoid storage at temperatures higher than 40 deg C.
: Store in an upright position.
: Protect containers against physical damage.
: Check regularly for spills and leaks.
: Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container

: CARE: Packing of high density product in light weight metal or plastic packages may result in container collapse with product release
: Heavy gauge metal packages / Heavy gauge metal drums
: Aerosol dispenser.
: Check that containers are clearly labelled.

Storage incompatibility

: Reacts slowly with water.
: CAUTION contamination with moisture will liberate explosive hydrogen gas, causing pressure build up in sealed containers.
: Reacts violently with caustic soda, other alkalies -generating heat, highly flammable hydrogen gas.
: If alkali is dry, heat generated may ignite hydrogen -if alkali is in solution may cause violent foaming
: Segregate from alcohol, water.
: Avoid reaction with oxidising agents

X Must not be stored together **0** May be stored together with specific preventions **+** May be stored together

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters
Occupational Exposure Limits (OEL)
Ingredient Data

Source	Ingredient	Material name	TWA	STEL
Australia Exposure Standards	xylene	Xylene (o-, m-, p- isomers)	80 ppm / 350 mg/m3	655 mg/m3 / 150 ppm
	acetone	Acetone	500 ppm / 1185 mg/m3	2375 mg/m3 / 1000 ppm
	dimethyl ether	Dimethyl ether	400 ppm / 760 mg/m3	950 mg/m3 / 500 ppm

Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
xylene	Xylenes	Not Available	Not Available	Not Available
acetone	Acetone	Not Available	Not Available	Not Available
zinc powder	Zinc	6 mg/m3	21 mg/m3	120 mg/m3
dimethyl ether	Methyl ether; (Dimethyl ether)	3000 ppm	3800* ppm	7200* ppm

Ingredient	Original IDLH	Revised IDLH
xylene	900 ppm	Not Available
acetone	2500 ppm	Not Available
zinc powder	Not Available	Not Available
dimethyl ether	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
zinc powder	E	≤ 0.01 mg/m³
Notes:	*Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.*	

Exposure controls
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.
: General exhaust is adequate under normal conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection.
: Provide adequate ventilation in warehouse or closed storage areas.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION (CONTINUED)

: 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.

Type of Containment	Speed
aerosols, (released at low velocity into zone of active generation)	0.5-1m/s
direct spray, spray painting in shallow booths, gas discharge (active generation into zone of rapid air motion)	1-2.5m/s (200-500 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity
3: Intermittent, low production	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Personal protection

Eye and face protection

: Safety glasses with side shields.
: Chemical goggles.
: DO NOT wear contact lenses.

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

Skin/Hands/Feet protection

: No special equipment needed when handling small quantities.
: **OTHERWISE:**
For potentially moderate exposures:
- Wear general protective gloves, eg. light weight rubber gloves.
: For potentially heavy exposures:
- Wear chemical protective gloves, eg. PVC. and safety footwear.

Body/Other protection

: No special equipment needed when handling small quantities.
OTHERWISE:

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION (CONTINUED)

- Overalls.
- Skin cleansing cream.
- Eyewash unit.
- Do not spray on hot surfaces.
- The clothing worn by process operators insulated from earth may develop static charges far higher (up to 100 times) than the minimum ignition energies for various flammable gas-air mixtures. This holds true for a wide range of clothing materials including cotton.
- Avoid dangerous levels of charge by ensuring a low resistivity of the surface material worn outermost.

BRETHERICK: Handbook of Reactive Chemical Hazards.

Recommended materials

Glove Selection Index : Glove selection is based on a modified presentation of the **"Forsberg Clothing Performance Index".**

: The effect(s) of the following substance(s) are taken into account in the computer-generated selection: Grey Zinc Aerosol

Material	CPI	Material	CPI
BUTYL	C	NITRILE+PVC	C
BUTYL/NEOPRENE	C	PE/EVAL/PE	C
CPE	C	PVA	C
HYPALON	C	PVC	C
NAT+NEOPR+NITRILE	C	PVDC/PE/PVDC	C
NATURAL RUBBER	C	SARANEX-23	C
NATURAL+NEOPRENE	C	SARANEX-23 2-PLY	C
NEOPRENE	C	TEFLON	C
NEOPRENE/NATURAL	C	VITON	C
NITRILE	C	VITON/NEOPRENE	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation.

*Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION (CONTINUED)

Respiratory protection : Type AX Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent).
Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AX-AUS / Class 1	-	AX-PAPR-AUS / Class 1
up to 50 x ES	Air-line*	-	-
up to 100 x ES	-	AX-3	-
100+ x ES	-	Air-line**	-

* - Continuous-flow; ** - Continuous-flow or positive pressure demand
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses,
B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN),
E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury,
NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

: Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.

: The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

: Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used.

: Aerosols, in common with most vapours/ mists, should never be used in confined spaces without adequate ventilation. Aerosols, containing agents designed to enhance or mask smell, have triggered allergic reactions in predisposed individuals.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance : Grey to silver liquid; not miscible with water.
: Supplied as an aerosol pack. Contents under PRESSURE. Contains highly flammable ether propellant.

Physical State : Liquid
Odour : Not Available
Odour threshold : Not Available
pH (as supplied) : Not Available
Melting point / freezing point (°C) : Not Available
Initial boiling point and boiling range (°C) : Not Available
Flash point (°C) : -41 (propellant)
Evaporation rate : Not Available

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SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES (CONTINUED)

Flammability	:	HIGHLY FLAMMABLE.
Upper Explosive Limit (%)	:	Not Available
Lower Explosive Limit (%)	:	Not Available
Vapour pressure (kPa)	:	Not Available
Solubility in water	:	Immiscible
Vapour density (Air = 1)	:	Not Available
Relative density (Water = 1)		Not Available
Partition coefficient n-octanol / water	:	Not Available
Auto-ignition temperature (°C)	:	Not Available
Decomposition temperature	:	Not Available
Viscosity (cSt)	:	Not Available
Molecular weight (g/mol)	:	Not Applicable
Taste	:	Not Available
Explosive properties	:	Not Available
Oxidising properties	:	Not Available
Surface Tension (dyn/cm or mN/m)	:	Not Available
Volatile Component (%vol)	:	Not Available
Gas group	:	Not Available
pH as a solution (1%)	:	Not Available
VOC g/L	:	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	:	See section 7
Chemical stability	:	Elevated temperatures.
	:	Presence of open flame.
	:	Product is considered stable.
	:	Hazardous polymerisation will not occur.
Possibility of hazardous reactions	:	See section 7
Conditions to avoid	:	See section 7
Incompatible materials	:	See section 7
Hazardous decomposition products	:	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	:	Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.
	:	Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of coordination and vertigo.
	:	There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
	:	The acute toxicity of inhaled alkylbenzene is best described by central nervous system depression. These compounds may also act as general anaesthetics. Whole body symptoms of poisoning include light-headedness, nervousness, apprehension, a feeling of well-being, confusion, dizziness, drowsiness, ringing in the ears, blurred or double vision, vomiting and sensations of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness, depression of breathing, and arrest. Heart stoppage may result from cardiovascular collapse. A slow heart rate and low blood pressure may also occur.

SECTION 11 TOXICOLOGICAL INFORMATION (CONTINUED)

: Alkylbenzenes are not generally toxic except at high levels of exposure. Their breakdown products have low toxicity and are easily eliminated from the body.

: **Inhalation of toxic gases may cause:**
- Central Nervous System effects including depression, headache, confusion, dizziness, stupor, coma and seizures
- respiratory: acute lung swellings, shortness of breath, wheezing, rapid breathing, other symptoms and respiratory arrest
- heart: collapse, irregular heartbeats and cardiac arrest
- gastrointestinal: irritation, ulcers, nausea and vomiting (may be bloody), and abdominal pain.

: Following inhalation, ethers cause lethargy and stupor. Inhaling lower alkyl ethers results in headache, dizziness, weakness, blurred vision, seizures and possible coma. Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.

: WARNING: Intentional misuse by concentrating/inhaling contents may be lethal.

Ingestion

: Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

: Not normally a hazard due to physical form of product.

: Considered an unlikely route of entry in commercial/industrial environments

Skin Contact

: Skin contact with the material may be harmful; systemic effects may result following absorption.

: There is some evidence to suggest that the material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.

: Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.

: Spray mist may produce discomfort

: Alkyl ethers may defat and dehydrate the skin producing dermatoses. Absorption may produce headache, dizziness, and central nervous system depression.

: Open cuts, abraded or irritated skin should not be exposed to this material

Eye

: There is some evidence to suggest that this material can cause eye irritation and damage in some persons.

: Not considered to be a risk because of the extreme volatility of the gas. Eye contact with alkyl ethers (vapour or liquid) may produce irritation, redness and tears.

Chronic

: Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

: There is some evidence from animal testing that exposure to this material may result in toxic effects to the unborn baby.

: Main route of exposure to the gas in the workplace is by inhalation.

: Chronic exposure to alkyl ethers may result in loss of appetite, excessive thirst, fatigue, and weight loss.

: Women exposed to xylene in the first 3 months of pregnancy showed a slightly increased risk of miscarriage and birth defects. Evaluation of workers chronically exposed to xylene has demonstrated lack of genetic toxicity.

: Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

SECTION 11 TOXICOLOGICAL INFORMATION (CONTINUED)

Grey Zinc Aerosol :

Toxicity	Irritation
Not Available	Not Available

Xylene :

Toxicity	Irritation
Dermal (rabbit) LD50: >1700 mg/kg[2]	Eye (human): 200 ppm irritant
Inhalation (rat) LC50: 4994.295 mg/l/4h[2]	Eye (rabbit): 5 mg/24h SEVERE
Oral (mouse) LD50: 2119mg/kg[2]	Eye (rabbit): 87 mg mild
	Eye: adverse effect observed (irritating)[1]
	Skin (rabbit):500 mg/24h moderate
	Skin: adverse effect observed (irritating)[1]

Acetone :

Toxicity	Irritation
Dermal (rabbit) LD50: =20 mg/kg[2]	Eye (human): 50 ppm - irritant
Inhalation (rat) LC50: 100.2 mg/l/8hr[2]	Eye (rabbit): 20mg/24hr -moderate
Oral (rat) LD50: 1800-7300 mg/kg[2]	Eye (rabbit): 3.95 mg - SEVERE
	Eye: adverse effect observed (irritating)[1]
	Skin (rabbit): 500 mg/24hr - mild
	Skin (rabbit):395mg (open) - mild
	Skin: no adverse effect observed (not irritating)[1]

Zinc powder :

Toxicity	Irritation
dermal (rat) LD50: >2000 mg/kg[1]	Eye: no adverse effect observed (not irritating)[1]
Inhalation (rat) LC50: >1.79 mg/l4 h[1]	Skin: no adverse effect observed (not irritating)[1]
Oral (rat) LD50: >2000 mg/kg[1]	

Dimethyl ether :

Toxicity	Irritation
Inhalation (rat) LC50: 309 mg/l/4H[2]	Not Available

Legend :

1. Value obtained from Europe ECHA Registered Substances - Acute toxicity
2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*

SECTION 11 TOXICOLOGICAL INFORMATION (CONTINUED)

Xylene : Reproductive effector in rats
: The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
: The substance is classified by IARC as Group 3:
: NOT classifiable as to its carcinogenicity to humans.
: Evidence of carcinogenicity may be inadequate or limited in animal testing.

Acetone :
: The acute toxicity of acetone is low. Acetone is not a skin irritant or sensitizer, but it removes fat from the skin, and it also irritates the eye. Animal testing shows acetone may cause macrocytic anaemia. Studies in humans have shown that exposure to acetone at a level of 2375 mg/cubic metre has not caused neurobehavioural deficits.

Zinc Powder : Inhalation (human) TCLo: 124 mg/m3/50min. Skin (human):0.3mg/3DaysInt. mild

Aluminium : No significant acute toxicological data identified in literature search.

Xylene & Acetone : The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Acute Toxicity	✗	**Carcinogenicity**	✗
Skin Irritation/Corrosion	✓	**Reproductivity**	✗
Serious Eye Damage/Irritation	✓	**STOT - Single Exposure**	✓
Respiratory or Skin sensitisation	✗	**STOT - Repeated Exposure**	✗
Mutagenicity	✗	**Aspiration Hazard**	✗

Legend
✗ *- Data either not available or does not fill the criteria for classification*
✓ *- Data available to make classification*

SECTION 12 ECOLOGICAL INFORMATION

Toxicity
Grey Zinc Aerosol :

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

Xylene :

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	2.6mg/L	2
EC50	48	Crustacea	1.8mg/L	2
EC50	72	Algae or other aquatic plants	3.2mg/L	2
NOEC	73	Algae or other aquatic plants	0.44mg/L	2

SECTION 12 ECOLOGICAL INFORMATION (CONTINUED)

Acetone :

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	5-540mg/L	2
EC50	48	Crustacea	>100mg/L	4
EC50	96	Algae or other aquatic	20.565mg/L	2
NOEC	504	Crustacea	1-866mg/L	2

Zinc Powder :

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	0.001-0.58mg/L	2
EC50	48	Crustacea	0.001-0.014mg/L	2
EC50	72	Algae or other aquatic plants	0.106mg/L	4
BCF	360	Algae or other aquatic plants	9mg/L	4
NOEC	72	Algae or other aquatic plants	0.00006537mg/L	2

Dimethyl Ether :

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	1-783.04mg/L	2
EC50	48	Crustacea	>4400.0mg/L	2
EC50	96	Algae or other aquatic plants	154.917mg/L	2
NOEC	48	Crustacea	>4000mg/L	1

Legend : *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

For Metal:
Atmospheric Fate: Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air.
Environmental Fate: Environmental processes, such as oxidation, the presence of acids or bases and microbiological processes, may transform insoluble metals to more soluble ionic forms. Environmental processes may enhance bioavailability and may also be important in changing solubilities.
Aquatic/Terrestrial Fate: When released to dry soil, most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice. A metal ion is considered infinitely persistent because it cannot degrade further. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. A significant proportion of dissolved/ sorbed metals will end up in sediments through the settling of suspended particles. The remaining metal ions can then be taken up by aquatic organisms. Ionic species may bind to dissolved ligands or sorb to solid particles in water.
Ecotoxicity: Even though many metals show few toxic effects at physiological pH levels, transformation may introduce new or magnified effects.

SECTION 12 ECOLOGICAL INFORMATION (CONTINUED)

For Aromatic Substances Series:
Environmental Fate: Large, molecularly complex polycyclic aromatic hydrocarbons, or PAHs, are persistent in the environment longer than smaller PAHs.
Atmospheric Fate: PAHs are 'semi-volatile substances" which can move between the atmosphere and the Earth's surface in repeated, temperature-driven cycles of deposition and volatilization.
Terrestrial Fate: BTEX compounds have the potential to move through soil and contaminate ground water, and their vapors are highly flammable and explosive.
Ecotoxicity: Within an aromatic series, acute toxicity increases with increasing alkyl substitution on the aromatic nucleus. The order of most toxic to least in a study using grass shrimp and brown shrimp was dimethylnaphthalenes > methylnaphthalenes >naphthalenes. Anthrcene is a phototoxic PAH. UV light greatly increases the toxicity of anthracene to bluegill sunfish. Biological resources in strong sunlight are at more risk than those that are not. PAHs in general are more frequently associated with chronic risks.
Most ethers are very resistant to hydrolysis, and the rate of cleavage of the carbon-oxygen bond by abiotic processes is expected to be insignificant.
Direct photolysis will not be an important removal process since aliphatic ethers do not absorb light at wavelengths >290 nm

For Xylenes:
log Koc : 2.05-3.08; Koc : 25.4-204; Half-life (hr) air : 0.24-42; Half-life (hr) H2O surface water : 24-672; Half-life (hr) H2O ground : 336-8640; Half-life (hr) soil : 52-672; Henry's Pa m3
/mol : 637-879; Henry's atm m3 /mol - 7.68E-03; BOD 5 if unstated - 1.4,1%; COD - 2.56,13% ThOD - 3.125 : BCF : 23; log BCF : 1.17-2.41.
Environmental Fate: Most xylenes released to the environment will occur in the atmosphere and volatilisation is the dominant environmental fate process. Soil - Xylenes are expected to have moderate mobility in soil evaporating rapidly from soil surfaces. The extent of the degradation is expected to depend on its concentration, residence time in the soil, the nature of the soil, and whether resident microbial populations have been acclimated. Xylene can remain below the soil surface for several days and may travel through the soil profile and enter groundwater. Soil and water microbes may transform it into other, less harmful compounds, although this happens slowly. It is not clear how long xylene remains trapped deep underground in soil or groundwater, but it may be months or years.
Atmospheric Fate: Xylene evaporates quickly into the air from surface soil and water and can remain in the air for several days until it is broken down by sunlight into other less harmful chemicals. In the ambient atmosphere, xylenes are expected to exist solely in the vapour phase. Xylenes are degraded in the atmosphere with an estimated atmospheric lifetime of about 0.5 to 2 days. Xylene may contribute to photochemical smog formation. p-Xylene has a moderately high photochemical reactivity under smog conditions, higher than the other xylene isomers. The photooxidation of p-xylene results in the production of carbon monoxide, formaldehyde, glyoxal, methylglyoxal, 3-methylbenzylnitrate, m-tolualdehyde, 4-nitro-3-xylene, 5-nitro-3-xylene, 2,6-dimethyl-pbenzoquinone, 2,4-dimethylphenol, 6-nitro-2,4-dimethylphenol, 2,6-dimethylphenol, and 4-nitro-2,6-dimethylphenol.
Aquatic Fate: p-xylene may adsorb to suspended solids and sediment in water and is expected to volatilise from water surfaces. Estimated volatilisation half-lives for a model river and model lake are 3 hours and 4 days, respectively. Measurements taken from goldfish, eels and clams indicate that bioconcentration in aquatic organisms is low. Photo-oxidation in the presence of humic acids may play an important role in the abiotic degradation of p-xylene. p-Xylene is biodegradable and has been observed to degrade in pond water however; it is unclear if it degrades in surface waters. p-Xylene has been observed to degrade in anaerobic and aerobic groundwater; however, it is known to persist for many years in groundwater, at least at sites where the concentration might have been quite high.
Ecotoxicity: Xylenes are slightly toxic to fathead minnow, rainbow trout and bluegill and not acutely toxic to water fleas. For Photobacterium phosphoreum EC50 (24 h): 0.0084 mg/L. and Gammarus lacustris LC50 (48 h): 0.6 mg/L.

For Ketones: Ketones, unless they are alpha, beta--unsaturated ketones, can be considered as narcosis or baseline toxicity compounds.
Aquatic Fate: Hydrolysis of ketones in water is thermodynamically favourable only for low molecular weight ketones. Reactions with water are reversible with no permanent change in the structure of the ketone substrate. Ketones are stable to water under ambient environmental conditions. When pH levels are greater than 10, condensation reactions can occur which produce higher molecular weight products. Under ambient conditions of temperature, pH, and low concentration, these condensation reactions are unfavourable. Based on its reactions in air, it seems likely that ketones undergo photolysis in water.
Terrestrial Fate: It is probable that ketones will be biodegraded by micro-organisms in soil and water.

SECTION 12 ECOLOGICAL INFORMATION (CONTINUED)

Ecotoxicity: Ketones are unlikely to bioconcentrate or biomagnify.
DO NOT discharge into sewer or waterways.

For Acetone:
log Kow : -0.24;
Half-life (hr) air : 312-1896;
Half-life (hr) H2O surface water : 20;
Henry's atm m3 /mol : 3.67E-05
BOD 5: 0.31-1.76,46-55%
COD: 1.12-2.07
ThOD: 2.2BCF: 0.69.
Environmental Fate: The relatively long half-life allows acetone to be transported long distances from its emission source.
Atmospheric Fate: Acetone preferentially locates in the air compartment when released to the environment. In air, acetone is lost by photolysis and reaction with photochemically produced hydroxyl radicals; the estimated half-life of these combined processes is about 22 days.
Air Quality Standards: none available.
Terrestrial Fate: Very little acetone is expected to reside in soil, biota, or suspended solids and has low propensity for soil absorption and a high preference for moving through the soil and into the ground water. Acetone released to soil volatilizes although some may leach into the ground where it rapidly biodegrades. **Soil Guidelines:** none available.
Aquatic Fate: A substantial amount of acetone can also be found in water. Acetone is highly soluble and slightly persistent in water, with a half-life of about 20 hours Drinking Water **Standard:** none available.
Ecotoxicity: Acetone does not concentrate in the food chain, is minimally toxic to aquatic life and is considered to be readily biodegradable. Testing shows that acetone exhibits a low order of toxicity for brook trout, fathead minnow, Japanese quail, ring-neck pheasant and water fleas. Low toxicity for aquatic invertebrates. For aquatic plants, NOEC: 5400-7500 mg/L.
Acetone vapours were shown to be relatively toxic to flour beetle and flour moths and their eggs. The direct application of acetone liquid to the body of the insects or surface of the eggs did not, however, cause any mortality. The ability of acetone to inhibit cell multiplication has been examined in a wide variety of microorganisms. Mild to moderate toxicity occurred in bacteria exposed to acetone for 6-4 days however, overall data indicates a low degree of toxicity for acetone. The only exception to these findings was the results obtained with the flagellated protozoa (Entosiphon sulcatum).

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.83 days)
acetone	LOW (Half-life = 14 days)	LOW (Half-life = 116.25 days)
dimethyl ether	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
xylene	MEDIUM (BCF = 740)
acetone	LOW (BCF = 0.69)
dimethyl ether	LOW (LogKOW = 0.1)

Mobility in soil

Ingredient	Mobility
acetone	HIGH (KOC = 1.981)
dimethyl ether	HIGH (KOC = 1.292)

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SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal : Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

: A Hierarchy of Controls seems to be common - the user should investigate:
- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

: This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Consult State Land Waste Management Authority for disposal.
- Discharge contents of damaged aerosol cans at an approved site.
- Allow small quantities to evaporate.
- DO NOT incinerate or puncture aerosol cans.
- Bury residues and emptied aerosol cans at an approved site.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant

HAZCHEM Not Applicable

Land Transport (ADG)

UN number	:	1950
UN proper shipping name	:	AEROSOLS
Transport hazard class(es)	:	Class I 2.1 Subrisk I Not Applicable
Packing group	:	Not Applicable
Environmental hazard	:	Environmentally hazardous
Special precautions for user	:	Special provisions I 63 190 277 327 344 381 Limited quantity I 1000ml

Air transport (ICAO-IATA / DGR)

UN number	:	1950
UN proper shipping name	:	Aerosols, flammable (engine starting fluid); Aerosols, flammable
Transport hazard class(es)	:	ICAO/IATA I Class 2.1 ICAO / IATA Subrisk I Not Applicable ERG Code I 10L
Packing group	:	Not Applicable
Environmental hazard	:	Environmentally hazardous

SECTION 14 TRANSPORT INFORMATION (CONTINUED)

Special precautions for user	:	Special provisions I A145 A167 A802 Cargo Only Packing Instructions I 203 Cargo Only Maximum Qty / Pack I 150 kg Passenger and Cargo Packing Instructions I 203 Passenger and Cargo Maximum Qty / Pack I 75 kg Passenger and Cargo Limited Quantity Packing Instructions I Y203 Passenger and Cargo Limited Maximum Qty / Pack I 30 kg G

Sea transport (IMDG-Code / GGVSee)

UN number	:	1950
UN proper shipping name	:	AEROSOLS
Transport hazard class(es)	:	IMDG Class I 2.1 IMDG Subrisk I Not Applicable
Packing group	:	Not Applicable
Environmental hazard	:	Marine Pollutant
Special precautions for user	:	EMS Number I F-D , S-U Special provisions I 63 190 277 327 344 381 959 Limited Quantities I 1000 ml

SECTION 15 REGULATORY INFORMATION

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

XYLENE IS FOUND ON THE FOLLOWING REGULATORY LISTS
Not Applicable

ACETONE IS FOUND ON THE FOLLOWING REGULATORY LISTS
Not Applicable

ZINC POWDER IS FOUND ON THE FOLLOWING REGULATORY LISTS
Not Applicable

DIMETHYL ETHER IS FOUND ON THE FOLLOWING REGULATORY LISTS
Not Applicable

National Inventory Status

Australia - AICS	:	Yes
Canada - DSL	:	Yes
Canada - NDSL	:	No (acetone; xylene; dimethyl ether; zinc powder)
China - IECSC	:	Yes
Europe - EINEC / ELINCS / NLP	:	Yes
Japan - ENCS	:	No (zinc powder)
Korea - KECI	:	Yes
New Zealand - NZIoC	:	Yes
Philippines - PICCS	:	Yes
USA - TSCA	:	Yes
Taiwan - TCSI	:	Yes
Mexico - INSQ	:	No (zinc phosphate)
Vietnam - NCI	:	Yes
Russia - ARIPS	:	Yes
Legend	:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 OTHER INFORMATION

Revision Date : 02/09/2023
Initial Date : 23/07/2002

SDS Version Summary

Version	Issue Date	Sections Updated
22.1.1.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification
23.1.1.1	31/03/2020	Classification, Physical Properties

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC-TWA : Permissible Concentration-Time Weighted Average
PC-STEL : Permissible Concentration-Short Term Exposure Limit
IARC : International Agency for Research on Cancer
ACGIH : American Conference of Governmental Industrial Hygienists
STEL : Short Term Exposure Limit
TEEL : Temporary Emergency Exposure Limit
IDLH : Immediately Dangerous to Life or Health Concentrations
OSF : Odour Safety Factor
NOAEL : No Observed Adverse Effect Level
LOAEL : Lowest Observed Adverse Effect Level
TLV : Threshold Limit Value
LOD : Limit Of Detection
OTV : Odour Threshold Value
BCF : BioConcentration Factors
BEI : Biological Exposure Index