

# Gun Powder Powder Keg

## Auto Klene Solutions

Chemwatch: 73-5410  
Version No: 9.1.1.1  
Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 3

Issue Date: 26/09/2024  
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S.GHS.AUS.EN

### SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### Product Identifier

Product name	Gun Powder Powder Keg
Synonyms	GPPK20
Proper shipping name	CORROSIVE SOLID, N.O.S. (contains sodium metasilicate and potassium hydroxide)
Other means of identification	Not Available

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

Relevant identified uses	Alkaline wash.
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#### Details of the supplier of the safety data sheet

Registered company name	Auto Klene Solutions
Address	51/885 Mountain Hwy Bayswater VIC 3153
Telephone	+61 3 8761 1900
Fax	+61 3 8761 1955
Website	http://www.autoklene.com/msds/
Email	Not Available

#### Emergency telephone number

Association / Organisation	Auto Klene Solutions
Emergency telephone numbers	131 126 (Poisons Information Centre)
Other emergency telephone numbers	0800 764 766 (New Zealand Poisons Information Centre)

### SECTION 2 HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

**HAZARDOUS CHEMICAL. DANGEROUS GOODS.** According to the WHS Regulations and the ADG Code.

#### CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	0		
Toxicity	2		
Body Contact	3		
Reactivity	0		
Chronic	0		

0 = Minimum  
1 = Low  
2 = Moderate  
3 = High  
4 = Extreme

Poisons Schedule	S6
Classification [1]	Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1
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)	
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SIGNAL WORD	DANGER
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#### Hazard statement(s)

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.

#### Precautionary statement(s) Prevention

P260	Do not breathe dust/fume.
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Continued...

## Gun Powder Powder Keg

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P270	Do not eat, drink or smoke when using this product.

## Precautionary statement(s) Response

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P321	Specific treatment (see advice on this label).
P363	Wash contaminated clothing before reuse.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

## Precautionary statement(s) Storage

P405	Store locked up.
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## Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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## SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

## Substances

See section below for composition of Mixtures

## Mixtures

CAS No	%[weight]	Name
1344-09-8	40-70	<u>sodium metasilicate</u>
1310-58-3	15-30	<u>potassium hydroxide</u>
10213-79-3	15-30	<u>sodium metasilicate, pentahydrate</u>

## SECTION 4 FIRST AID MEASURES

## Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▶ Immediately hold eyelids apart and flush the eye continuously with running water.</li> <li>▶ 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.</li> <li>▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</li> <li>▶ Transport to hospital or doctor without delay.</li> <li>▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately flush body and clothes with large amounts of water, using safety shower if available.</li> <li>▶ Quickly remove all contaminated clothing, including footwear.</li> <li>▶ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.</li> <li>▶ Transport to hospital, or doctor.</li> </ul>
Inhalation	<ul style="list-style-type: none"> <li>▶ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▶ Lay patient down. Keep warm and rested.</li> <li>▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▶ Transport to hospital, or doctor.</li> <li>▶ Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.</li> <li>▶ Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).</li> <li>▶ As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.</li> <li>▶ Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.</li> </ul> <p><b>This must definitely be left to a doctor or person authorised by him/her.</b> (ICSC13719)</p>
Ingestion	<ul style="list-style-type: none"> <li>▶ For advice, contact a Poisons Information Centre or a doctor at once.</li> <li>▶ Urgent hospital treatment is likely to be needed.</li> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Transport to hospital or doctor without delay.</li> </ul>

## Indication of any immediate medical attention and special treatment needed

For acute or short-term repeated exposures to highly alkaline materials:

- ▶ Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- ▶ Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- ▶ Oxygen is given as indicated.

- ▶ The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
  - ▶ Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.
- Alkalis continue to cause damage after exposure.

INGESTION:

- ▶ Milk and water are the preferred diluents
- No more than 2 glasses of water should be given to an adult.
- ▶ Neutralising agents should never be given since exothermic heat reaction may compound injury.
- \* Catharsis and emesis are absolutely contra-indicated.
- \* Activated charcoal does not absorb alkali.
- \* Gastric lavage should not be used.
- Supportive care involves the following:
- ▶ Withhold oral feedings initially.
  - ▶ If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
  - ▶ Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
  - ▶ Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- ▶ Injury should be irrigated for 20-30 minutes.
- Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- ▶ Water spray or fog.
- ▶ Foam.
- ▶ Dry chemical powder.
- ▶ BCF (where regulations permit).
- ▶ Carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"><li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li><li>▶ Wear full body protective clothing with breathing apparatus.</li><li>▶ Prevent, by any means available, spillage from entering drains or water course.</li><li>▶ Use fire fighting procedures suitable for surrounding area.</li><li>▶ <b>Do not approach containers suspected to be hot.</b></li><li>▶ Cool fire exposed containers with water spray from a protected location.</li><li>▶ If safe to do so, remove containers from path of fire.</li></ul>
Fire/Explosion Hazard	<ul style="list-style-type: none"><li>▶ Non combustible.</li><li>▶ Not considered a significant fire risk, however containers may burn.</li></ul> <p>Decomposition may produce toxic fumes of: phosphorus oxides (POx) silicon dioxide (SiO2) May emit corrosive fumes.</p>
HAZCHEM	2X

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	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"><li>▶ Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.</li><li>▶ Check regularly for spills and leaks.</li><li>▶ Clean up all spills immediately.</li><li>▶ Avoid contact with skin and eyes.</li><li>▶ Wear protective clothing, gloves, safety glasses and dust respirator.</li><li>▶ Use dry clean up procedures and avoid generating dust.</li><li>▶ Sweep up or</li><li>▶ Vacuum up (consider explosion-proof machines designed to be grounded during storage and use).</li><li>▶ Place in clean drum then flush area with water.</li></ul>
Major Spills	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"><li>▶ Clear area of personnel and move upwind.</li><li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li><li>▶ Wear full body protective clothing with breathing apparatus.</li><li>▶ Prevent, by any means available, spillage from entering drains or water course.</li><li>▶ Consider evacuation (or protect in place).</li><li>▶ Stop leak if safe to do so.</li><li>▶ Contain spill with sand, earth or vermiculite.</li></ul>

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"><li>Avoid all personal contact, including inhalation.</li><li>Wear protective clothing when risk of exposure occurs.</li><li>Use in a well-ventilated area.</li><li><b>WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.</b></li><li>Avoid smoking, naked lights or ignition sources.</li><li>Avoid contact with incompatible materials.</li><li>When handling, <b>DO NOT eat, drink or smoke.</b></li></ul>
Other information	<p>Refrigerated storage normally required.</p> <ul style="list-style-type: none"><li>Store in original containers.</li><li>Keep containers securely sealed.</li><li>Store in a cool, dry, well-ventilated area.</li><li>Store away from incompatible materials and foodstuff containers.</li><li>Protect containers against physical damage and check regularly for leaks.</li><li>Observe manufacturer's storage and handling recommendations contained within this SDS.</li><li><b>DO NOT store near acids, or oxidising agents</b></li><li>No smoking, naked lights, heat or ignition sources.</li></ul>

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"><li>Lined metal can, lined metal pail/ can.</li><li>Plastic pail.</li><li>Polyliner drum.</li><li>Packing as recommended by manufacturer.</li><li>Check all containers are clearly labelled and free from leaks.</li></ul> <p>For low viscosity materials</p> <ul style="list-style-type: none"><li>Drums and jerricans must be of the non-removable head type.</li><li>Where a can is to be used as an inner package, the can must have a screwed enclosure.</li></ul> <p>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):</p> <ul style="list-style-type: none"><li>Removable head packaging:</li><li>Cans with friction closures and</li><li>low pressure tubes and cartridges</li></ul> <p>may be used.</p> <p>-</p> <p>Where combination packages are used, and the inner packages are of glass, porcelain or stoneware, there must be sufficient inert cushioning material in contact with inner and outer packages unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.</p>
Storage incompatibility	<p>Sodium hydroxide/ potassium hydroxide:</p> <ul style="list-style-type: none"><li>reacts with water evolving heat and corrosive fumes</li><li>reacts violently with acids, trans-acetylene dichloride, aminotetrazole, p-bis(1,3-dibromoethyl), benzene, bromoform, halogenated compounds, nitrogen-containing compounds, organic halogens, chlorine dioxide ((explodes), chloroform, cresols, cyclopentadiene, 4-chloro-2-methylphenol, cis-dichloroethylene, 2,2-dichloro-3,3-dimethylbutane, ethylene chlorohydrin, germanium, iodine pentafluoride, maleic anhydride, p-nitrotoluene,nitrogen trichloride, o-nitrophenol, phosphonium iodide, potassium peroxodisulfate, propylene oxide, 1,2,4,5-tetrachlorobenzene (highly toxic substance is forme), 2,2,3,3-tetrafluoro-1-propanol, tetrahydrofuran, thorium dicarbide, trichloroethanol, 2,4,6-trinitrotoluene, vinyl acetate</li><li>reacts with fluorine, nitroalkanes, (forming explosive compounds)</li><li>incompatible with acetic acid, acetaldehyde, acetic anhydride, acrolein, acrylonitrile, allyl chloride, organic anhydride, acrylates, alcohols, aldehydes, alkylene oxides, substituted allyls, ammonium chloroplatinate, benzanthrone, bromine, benzene-1,4-diol, carbon dioxide, cellulose nitrate, chlorine trifluoride, 4-chlorobutyronitrile, chlorohydrin, chloronitrotoluenes, chlorosulfonic acid, cinnamaldehyde, caprolactam solution, chlorocresols, 1,2-dichloroethylene, epichlorohydrin, ethylene cyanohydrin, formaldehyde (forms formic acid and flammable hydrogen gas), glycols, glyoxal, hexachloroplatinate, hydrogen sulfide, hydroquinone, iron-silicon, isocyanates, ketones, methyl azide, 4-methyl-2-nitrophenol, mineral acids (forming corresponding salt),nitrobenzene, N-nitrosohydroxylamine, nitrates pentol, phenols, phosphorus, phosphorus pentaoxide, beta-propiolactone, sodium, sulfur dioxide, tetrahydroborate, 1,1,1,2-tetrachloroethane, 2,2,2-trichloroethanol, trichloronitromethane, zirconium</li><li>ignites on contact with cinnamaldehyde or zinc and reacts explosively with a mixture of chloroform and methane</li><li>forms heat-, friction-, and/ or shock-sensitive- explosive salts with nitro-compounds, cyanogen azide, 3-ethyl-4-hydroxy-1,2,5-oxadiazole, 3-methyl-2-penten-4-yn-1-ol, N,N'-bis(2,2,2-trinitroethyl)urea, trichloroethylene (forms dichloroacetylene)</li><li>increase the explosive sensitivity of nitromethane</li><li>attacks some plastics, rubber, coatings and metals: aluminium, tin, zinc,etc, and their alloys, producing flammable hydrogen gas</li></ul> <ul style="list-style-type: none"><li>Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.</li><li>These trifluorides are hypergolic oxidisers. They ignite on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.</li><li>The state of subdivision may affect the results.</li><li>In presence of moisture, the material is corrosive to aluminium, zinc and tin producing highly flammable hydrogen gas.</li><li>Reacts vigorously with acids</li><li>For storage, no aluminium, light alloy, galvanised steel and glass receptacles or pipes should be used. On contact with aluminium or light alloys hydrogen gas may be evolved.</li><li>Steel, stainless steel and alkali stable plastic materials are generally appropriate.</li><li>Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates.</li><li>Avoid contact with copper, aluminium and their alloys.</li></ul>

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
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Australia Exposure Standards	potassium hydroxide	Potassium hydroxide	Not Available	Not Available	2 mg/m3	Not Available
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EMERGENCY LIMITS				
Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
sodium metasilicate	Silicic acid, sodium salt; (Sodium silicate)	5.9 mg/m3	65 mg/m3	390 mg/m3
potassium hydroxide	Potassium hydroxide	0.18 mg/m3	2 mg/m3	54 mg/m3
sodium metasilicate, pentahydrate	Sodium metasilicate pentahydrate	6.6 mg/m3	73 mg/m3	440 mg/m3
sodium metasilicate, pentahydrate	Sodium silicate; (Sodium metasilicate)	3.8 mg/m3	42 mg/m3	250 mg/m3
Ingredient	Original IDLH	Revised IDLH		
sodium metasilicate	Not Available	Not Available		
potassium hydroxide	Not Available	Not Available		
sodium metasilicate, pentahydrate	Not Available	Not Available		

OCCUPATIONAL EXPOSURE BANDING		
Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
sodium metasilicate	E	≤ 0.01 mg/m³
sodium metasilicate, pentahydrate	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.
Personal protection	
Eye and face protection	<ul style="list-style-type: none"><li>Chemical goggles.</li><li>Full face shield may be required for supplementary but never for primary protection of eyes.</li><li>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.</li></ul>
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"><li>Wear chemical protective gloves, e.g. PVC.</li><li>Wear safety footwear or safety gumboots, e.g. Rubber</li></ul> <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"><li>Overalls.</li><li>PVC Apron.</li><li>PVC protective suit may be required if exposure severe.</li><li>Eyewash unit.</li><li>Ensure there is ready access to a safety shower.</li></ul>

Recommended material(s)

GLOVE SELECTION INDEX	
Glove selection is based on a modified presentation of the: <b>"Forsberg Clothing Performance Index"</b> . The effect(s) of the following substance(s) are taken into account in the <b>computer-generated</b> selection: Gun Powder Powder Keg	
Material	CPI
BUTYL	A
NATURAL+NEOPRENE	A

Respiratory protection			
Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)			
Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.			
Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator

## Gun Powder Powder Keg

NEOPRENE	A
NITRILE	A
NITRILE+PVC	A
PVC	A
NATURAL RUBBER	B

\* 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.

up to 10	1000	-AUS / Class1 P2	-
up to 50	1000	-	-AUS / Class 1 P2
up to 50	5000	Airline *	-
up to 100	5000	-	-2 P2
up to 100	10000	-	-3 P2
100+			Airline**

\* - 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(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- ▶ Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- ▶ The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- ▶ Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- ▶ Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- ▶ Use approved positive flow mask if significant quantities of dust becomes airborne.
- ▶ Try to avoid creating dust conditions.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

## Information on basic physical and chemical properties

Appearance	White coloured corrosive powder; miscible in water.		
Physical state	Divided Solid	Relative density (Water = 1)	0.9
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Applicable
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Miscible	pH as a solution (1%)	>11.5
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

## SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul>
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

Continued...

## Gun Powder Powder Keg

Inhaled	<p>Inhaling corrosive bases may irritate the respiratory tract. Symptoms include cough, choking, pain and damage to the mucous membrane. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.</p> <p>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.</p> <p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p>
Ingestion	<p>The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.</p> <p>Ingestion of alkaline corrosives may produce burns around the mouth, ulcerations and swellings of the mucous membranes, profuse saliva production, with an inability to speak or swallow. Both the oesophagus and stomach may experience burning pain; vomiting and diarrhoea may follow.</p> <p>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.</p>
Skin Contact	<p>Potassium hydroxide burns are not immediately painful; onset of pain may be delayed minutes or hours; thus care should be taken to avoid contamination of gloves and boots.</p> <p>Skin contact with alkaline corrosives may produce severe pain and burns; brownish stains may develop. The corroded area may be soft, gelatinous and necrotic; tissue destruction may be deep.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions 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.</p>
Eye	<p>The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.</p> <p>If applied to the eyes, this material causes severe eye damage.</p> <p>Direct eye contact with corrosive bases can cause pain and burns. There may be swelling, epithelium destruction, clouding of the cornea and inflammation of the iris. Mild cases often resolve; severe cases can be prolonged with complications such as persistent swelling, scarring, permanent cloudiness, bulging of the eye, cataracts, eyelids glued to the eyeball and blindness.</p> <p>Alkaline salts may cause severe irritation to the eyes and precautions should be taken to avoid direct eye contact.</p>
Chronic	<p>Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> <p>Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis, caused by particles less than 0.5 micron penetrating and remaining in the lung.</p> <p>Soluble silicates do not exhibit sensitizing potential. Testing in bacterial and animal experiments have not shown any evidence of them causing mutations or birth defects.</p>

Gun Powder Powder Keg	TOXICITY	IRRITATION
	Not Available	Not Available
sodium metasilicate	TOXICITY	IRRITATION
	dermal (rat) LD50: >5000 mg/kg <sup>[1]</sup>	Skin (human): 250 mg/24h SEVERE
	Oral (rat) LD50: 1153 mg/kg <sup>[2]</sup>	Skin (rabbit): 250 mg/24h SEVERE
potassium hydroxide	TOXICITY	IRRITATION
	Oral (rat) LD50: =214-324 mg/kg <sup>[2]</sup>	Eye (rabbit): 1mg/24h rinse-moderate
		Skin (human): 50 mg/24h SEVERE
		Skin (rabbit): 50 mg/24h SEVERE
sodium metasilicate, pentahydrate	TOXICITY	IRRITATION
	Oral (rat) LD50: 847 mg/kg <sup>[2]</sup>	Skin (human): 250 mg/24h SEVERE
		Skin (rabbit): 250 mg/24h SEVERE

**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

POTASSIUM HYDROXIDE	<p>The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>The material may cause severe 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. Repeated exposures may produce severe ulceration.</p>
SODIUM METASILICATE, PENTAHYDRATE	<p>The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.</p> <p>sodium metasilicate anhydrous:</p>
SODIUM METASILICATE & SODIUM METASILICATE, PENTAHYDRATE	<p>The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>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.</p>
SODIUM METASILICATE & POTASSIUM HYDROXIDE & SODIUM METASILICATE, PENTAHYDRATE	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.</p>

Acute Toxicity



Carcinogenicity



Continued...

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					
Gun Powder Powder Keg	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
sodium metasilicate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	1-108mg/L	2
	EC50	48	Crustacea	1-700mg/L	2
	EC50	72	Algae or other aquatic plants	207mg/L	2
	NOEC	96	Fish	348mg/L	2
potassium hydroxide	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	80mg/L	4
	EC0	48	Crustacea	<1mg/L	2
	NOEC	24	Fish	28mg/L	2
sodium metasilicate, pentahydrate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	2-320mg/L	2
	EC50	48	Crustacea	1-700mg/L	2
	EC50	72	Algae or other aquatic plants	207mg/L	2
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					

May cause long-term adverse effects in the aquatic environment.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"><li>Containers may still present a chemical hazard/ danger when empty.</li><li>Return to supplier for reuse/ recycling if possible.</li></ul> Otherwise: <ul style="list-style-type: none"><li>If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.</li><li>Where possible retain label warnings and SDS and observe all notices pertaining to the product.</li><li>Recycle wherever possible.</li><li>Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</li><li>Treat and neutralise at an approved treatment plant.</li><li>Treatment should involve: Mixing or slurring in water; Neutralisation with suitable dilute acid followed by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).</li><li>Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.</li></ul>

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO
HAZCHEM	2X

Land transport (ADG)

UN number	1759
UN proper shipping name	CORROSIVE SOLID, N.O.S. (contains sodium metasilicate and potassium hydroxide)
Transport hazard class(es)	Class : 8 Subrisk : Not Applicable
Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	Special provisions : 274 Limited quantity : 1 kg

Air transport (ICAO-IATA / DGR)

UN number	1759
UN proper shipping name	Corrosive solid, n.o.s. * (contains sodium metasilicate and potassium hydroxide)
Transport hazard class(es)	ICAO/IATA Class : 8 ICAO / IATA Subrisk : Not Applicable ERG Code : 8L
Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	Special provisions : A3 A803 Cargo Only Packing Instructions : 863 Cargo Only Maximum Qty / Pack : 50 kg Passenger and Cargo Packing Instructions : 859 Passenger and Cargo Maximum Qty / Pack : 15 kg Passenger and Cargo Limited Quantity Packing Instructions : Y844 Passenger and Cargo Limited Maximum Qty / Pack : 5 kg

Sea transport (IMDG-Code / GGVSee)

UN number	1759
UN proper shipping name	CORROSIVE SOLID, N.O.S. (contains sodium metasilicate and potassium hydroxide)
Transport hazard class(es)	IMDG Class : 8 IMDG Subrisk : Not Applicable
Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	EMS Number : F-A , S-B Special provisions : 274 Limited Quantities : 1 kg

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

SODIUM METASILICATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

POTASSIUM HYDROXIDE IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List	
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes	
Australia Exposure Standards	
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	
Australia Inventory of Chemical Substances (AICS)	
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5	
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6	

SODIUM METASILICATE, PENTAHYDRATE IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List	
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes	
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	
Australia Inventory of Chemical Substances (AICS)	

GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

National Inventory Status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	No (sodium metasilicate, pentahydrate; sodium metasilicate; potassium hydroxide)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
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	26/09/2024
Initial Date	09/01/2017

SDS Version Summary

Version	Issue Date	Sections Updated
8.1.1.1	15/08/2019	Acute Health (eye), Acute Health (inhaled), Acute Health (skin), Advice to Doctor, Chronic Health, Exposure Standard, Ingredients, Spills (minor), Storage (storage incompatibility), Storage (storage requirement), Storage (suitable container), Synonyms, Use, Name
9.1.1.1	26/09/2024	One-off system update. NOTE: This may or may not change the GHS classification

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.