POTASSIUM CYANIDE SOLID

ROWE SCIENTIFIC

Chemwatch Hazard Alert Code: **4**

Chemwatch: **1680**
Version No: **7.1.5.1**
Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

Issue Date: **24/05/2021**
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S.GHS.AUS.EN

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

Product Identifier

Product name	POTASSIUM CYANIDE SOLID
Chemical Name	potassium cyanide
Synonyms	CP2805, CP2855, CP2890, CP2892
Proper shipping name	POTASSIUM CYANIDE, SOLID
Chemical formula	KCN
Other means of identification	Not Available
CAS number	151-50-8

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

Relevant identified uses	Laboratory chemical.

Details of the supplier of the safety data sheet

Registered company name	**ROWE SCIENTIFIC**
Address	11 Challenge Boulevard WA Wangara 6065 Australia
Telephone	+61 8 9302 1911
Fax	+61 8 9302 1905
Website	https://rowe.com.au/
Email	rowewa@rowe.com.au

Emergency telephone number

Association / Organisation	**ROWE SCIENTIFIC**
Emergency telephone numbers	+61 8 9302 1911 (24 Hrs)
Other emergency telephone numbers	Not Available

SECTION 2 Hazards identification

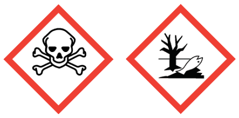
Classification of the substance or mixture

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

Poisons Schedule	S7 S1
Classification [1]	Acute Toxicity (Inhalation) Category 2, Chronic Aquatic Hazard Category 1, Acute Aquatic Hazard Category 1, Acute Toxicity (Dermal) Category 1, Acute Toxicity (Oral) 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 statement(s)

H330	Fatal if inhaled.
H410	Very toxic to aquatic life with long lasting effects.
H310	Fatal in contact with skin.
AUH032	Contact with acid liberates very toxic gas.
H300	Fatal if swallowed.

Precautionary statement(s) Prevention

P260	Do not breathe dust/fume.
P262	Do not get in eyes, on skin, or on clothing.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P273	Avoid release to the environment.
P284	[In case of inadequate ventilation] wear respiratory protection.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P330	Rinse mouth.
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P302+P352	IF ON SKIN: Wash with plenty of water.
P391	Collect spillage.

Precautionary statement(s) Storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary statement(s) 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

CAS No	%[weight]	Name
151-50-8	>90	potassium cyanide
Not Available		Decomposes in moist air liberating
74-90-8		hydrogen cyanide

Legend: *1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available*

Mixtures

See section above for composition of Substances

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: Immediately hold eyelids apart and flush the eye continuously with running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. 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 skin or hair contact occurs: Immediately flush body and clothes with large amounts of water, using safety shower if available. Quickly remove all contaminated clothing, including footwear. Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. Transport to hospital, or doctor.
Inhalation	If fumes or combustion products are inhaled remove from contaminated area. 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. 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. Transport to hospital, or doctor, without delay.
Ingestion	**IMPORTANT: ESTABLISH A FIRST AID PLAN BEFORE WORKING WITH CYANIDES.** **ANTIDOTES SHOULD BE AVAILABLE ON SITE.** Prompt response in an emergency is vital. All workers are to be trained and refresher trained in procedures. Rescuers might need the protection of breathing apparatus where there is the potential of exposure to airborne cyanide. Use the buddy system and avoid becoming a casualty. In all cases of cyanide exposure get medical help urgently after administering first aid. For cyanide poisonings by any route: Contact Poisons Advisory Centre or a doctor. Seek immediate medical attention. Place casualty in coma position. Give oxygen when available. Consider external cardiac compression, mechanical resuscitation and use of antidote kit. If breathing stops mouth-to-mouth resuscitation (also called expired air resuscitation - EAR) may be given only as a last resort. Should such resort prove necessary, first wash the casualty's mouth and lips. A first aid attendant giving EAR must not inhale the expired air of the casualty. US Practice as employed by DuPont:- FIRST AID Swallowed/ Inhaled /Skin Contact If no symptoms, no treatment is necessary; decontaminate patient. If conscious but with symptoms present (nausea, shortness of breath, dizziness) give oxygen. If consciousness is impaired (slurred speech, drowsiness) give oxygen and amyl nitrite. If unconscious but breathing, give oxygen and amyl nitrite by means of a respirator. To give amyl nitrite, break an ampoule in a cloth and insert into lip of mask for 15 seconds, then take away for 15 seconds. Repeat 5-6 times. First Aid Supplies for cyanide poisoning should be conveniently placed throughout cyanide areas and should be IMMEDIATELY accessible at all times. They should be routinely inspected (typically daily) by people who would use them in an emergency. The total numbers of any item listed below should be adequate to handle the largest number of exposure cases that can reasonably be anticipated, taking into account that some supplies may be wasted, destroyed or inaccessible during an emergency. Oxygen Resuscitators - The Flynn Series III Model from O-Two Systems has been found satisfactory, being lightweight, rugged and easy to use. Amyl Nitrite Ampoules - One box of one dozen ampoules per station is usually satisfactory. Stations should be located throughout the cyanide area. **CAUTION:** Amyl nitrite is not stable and must be replaced every 1 to 2 years. Store in the original dated box away from heat. (can be stored with the resuscitator). Avoid storage on vehicles where cabin temperatures can reach 60 deg. C. Storage in high temperature climates may require replacement before the expiry date on the box. Also avoid excessive cold storage which may limit the vapour pressure and reduce its evaporating property. Kits and amyl nitrite should be accessible, but secured against tampering or theft (an increase in the use of nitrite "poppers", as aphrodisiacs, introduces substance abuse concerns).

A set of cyanide first aid instructions should be located at each amyl nitrite storage location. Workers should be fully trained since in real emergency situations there will be insufficient time to "read the book".

Notes on the use of amyl nitrite:-
AN is highly volatile and flammable - do not smoke or use around a source of ignition.
If treating patient in a windy or draughty area provide some shelter or protection (shirt, wall, drum, cupped hand etc.) to prevent amyl nitrite vapour from being blown away. Keep ampoule upwind from the nose , the objective is to get amyl nitrite into the patient's lungs.
Rescuers should avoid AN inhalation to avoid becoming dizzy and losing competence.
Lay the patient down. Since AN dilates blood vessels and lowers blood pressure, lying down will help keep the patient conscious.
DO NOT overuse - excessive use might put the patient into shock.
Vasodilatory effects of amyl nitrate may promote fatal cardiac arrhythmias (particularly if the patient is not really poisoned by cyanide).
the role of amyl nitrate as a competitive inducer of methaemoglobin in the blood stream is highly variable and, alone, may produce levels of methaemoglobin as a low as 5% only.

Experience at DuPont plants has not shown any serious after-effects from treatment with amyl nitrite.

Indication of any immediate medical attention and special treatment needed

For cyanide intoxication (and for certain nitriles which produce cyanide ion)
Signs symptoms of acute cyanide poisoning reflect cellular hypoxia and are often non-specific.
Cyanosis may be a late finding.
A bradycardic, hypertensive and tachypneic patient suggests poisoning especially if CNS and cardiovascular depression subsequently occurs.
Immediate attention should be directed towards assisted ventilation, administration of 100% oxygen, insertion of intravenous lines and institution of cardiac monitoring.
Obtain an arterial blood gas immediately and correct any severe metabolic acidosis (pH below 7.15).
Mildly symptomatic patients generally require supportive care alone. Nitrites should not be given indiscriminately - in all cases of moderate to severe poisoning, they should be given in conjunction with thiosulfate. As a temporizing measure supply amyl nitrite perles (0.2ml inhaled 30 seconds every minute) until intravenous lines for sodium nitrite are established. 10 ml of a 3% solution is administered over 4 minutes to produce 20% methaemoglobin in adults. Follow directly with 50 ml of 25% sodium thiosulfate, at the same rate, IV. If symptoms reappear or persist within 1/2-1 hour, repeat nitrite and thiosulfate at 50% of initial dose. As the mode of action involves the metabolic conversion of the thiosulfate to thiocyanate, renal failure may enhance thiocyanate toxicity.
Methylene blue is not an antidote. [Ellenhorn and Barceloux: Medical Toxicology]

If amyl nitrite intervention is employed then Medical Treatment Kits should contain the following:
One box containing one dozen amyl nitrite ampoules
Two sterile ampoules of sodium nitrite solution (10 mL of a 3% solution in each)
Two sterile ampoules of sodium thiosulfate solution (50 mL of a 25% solution in each)
One 10 mL sterile syringe. One 50 mL sterile syringe. Two sterile intravenous needles. One tourniquet.
One dozen gauze pads.
Latex gloves
A "Biohazard" bag for disposal of bloody/contaminated equipment.
A set of cyanide instructions on first aid and medical treatment.

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Rescuers should avoid AN inhalation to avoid becoming dizzy and losing competence.
Lay the patient down. Since AN dilates blood vessels and lowers blood pressure, lying down will help keep patient conscious.
DO NOT overuse - excessive use might put the patient into shock. Experience at DuPont plants has not shown any serious after-effects from treatment with amyl nitrite.

ADDITIONAL NOTES:
Major medical treatment procedures may vary e.g. US (FDA method as recommended by DuPont) uses amyl nitrite as a methaemoglobin generator, followed by treatment with sodium nitrite and then sodium thiosulfate.

MODES OF ACTION: Amyl nitrite (AN) reacts with haemoglobin (HB) to form about 5% methaemoglobin (MHB). Sodium nitrite (NaNO2) reacts with haemoglobin to form approximately 20-30% methaemoglobin. Methaemoglobin attracts cyanide ions (CN) from tissue and binds with them to become cyanmethaemoglobin (CNMHB). Sodium thiosulfate (Na2S2O3) converts cyanmethaemoglobin to thiocyanate (HSCN) which is excreted by the kidneys. i.e. AN + HB = MHB NaNO2 + HB = MHB CN + MHB = CNMHB Na2S2O3 + CNMHB + O2 = HSCN
The administration of the antidote salts is intravenous in normal saline, Ringers lactate or other available IV fluid.
European practice may use 4-dimethylaminophenol (DMAP) as a methaemoglobin generator. Also hydroxycobalamin (Vitamin B12a) is used.
Hydroxycobalamin works by reacting with cyanide to form cyanocobalamin (Vitamin B12) which is excreted in the urine.
European and Australian NOHSC (ASCC) propose dicobalt edetate (Kelocyanor) as antidote. This acts by chelating cyanide to form stable cobalticyanide, which is excreted in the urine. In all cases hyperbaric therapy may increase the efficiency of a cyanide antidote kit.

SECTION 5 Firefighting measures

Extinguishing media

for inorganic cyanides

DO NOT USE CARBON DIOXIDE as reaction may produce hydrogen cyanide
Extinguish fires with water spray or fog; reaction may produce hydrogen cyanide - exhibit extreme caution
Do NOT use straight stream of water
Most foams will react with inorganic cyanides and release toxic and corrosive fumes.
For small fires use dry (non-acidic) chemical extinguishers or dry sand

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.

Advice for firefighters

Fire Fighting	Alert Fire Brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Use fire fighting procedures suitable for surrounding 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	Non combustible. Not considered a significant fire risk, however containers may burn. Decomposition may produce toxic fumes of: nitrogen oxides (NOx) May emit poisonous fumes.
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	Environmental hazard - contain spillage. Clean up waste regularly and abnormal spills immediately. Avoid breathing dust and contact with skin and eyes. Wear protective clothing, gloves, safety glasses and dust respirator. Use dry clean up procedures and avoid generating dust. Vacuum up or sweep up. **NOTE:** Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use). Dampen with water to prevent dusting before sweeping. Place in suitable containers for disposal.
Major Spills	Environmental hazard - contain spillage. Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Stop leak if safe to do so. Contain spill with sand, earth or vermiculite. Collect recoverable product into labelled containers for recycling. Neutralise/decontaminate residue (see Section 13 for specific agent). Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains. After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. If contamination of drains or waterways occurs, advise emergency services. Cautiously cover spill area with strong alkaline hypochlorite solution and allow to stand.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	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. **DO NOT** allow material to contact humans, exposed food or food utensils. Avoid contact with incompatible materials. When handling, **DO NOT** eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Use good occupational work practice. 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	Store in original containers. Keep containers securely sealed. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	Glass container is suitable for laboratory quantities Lined metal can, lined metal pail/ can. Plastic pail. Polyliner drum. Packing as recommended by manufacturer. Check all containers are clearly labelled and free from leaks. For low viscosity materials Drums and jerricans must be of the non-removable head type. Where a can is to be used as an inner package, the can must have a screwed enclosure. For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.): Removable head packaging; Cans with friction closures and low pressure tubes and cartridges may be used. - Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *. - In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *. - * unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic. All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.
Storage incompatibility	Hydrogen cyanide: can be self-reactive, forming an explosive mixture with air (flash point -18 C.) unless inhibited, material stored more than 90 days may be hazardous when heated above 180 C. or in contact with alkalis or amines can polymerise explosively reacts violently with strong oxidisers, acetaldehyde solutions containing more than 2-5% water are less stable than dry material in combination with strong oxidising acids can produce explosive violent decomposition acid solutions react with ammonia, ferric oxide, halogens, ozone attacks some plastics, rubber and coatings aqueous solutions attack carbon steels at room temperatures and stainless steels (especially if stabilised with sulfuric acid) above 80 C. Contact with acids produces toxic fumes

Metal cyanides are readily oxidised and those of some heavy metals show thermal instability.
Metal cyanide and cyanates are often endothermic,Several members of this family of compounds, containing heavy metals tend to explosive instability, and most are capable of violent oxidation under certain circumstances.
Fusion of mixtures of metal cyanides with metal chlorates, perchlorates, nitrates or nitrites cause violent explosion.
Magnesium reacts with incandescence on heating with several metal cyanides; release of cyanogen by thermal decomposition may cause vigorous reaction with magnesium.
Addition of one solid component (even in residual amounts) to another molten component is extremely dangerous.
BRETHERICK L.: Handbook of Reactive Chemical Hazards
Segregate from alcohol, water.
NOTE: May develop pressure in containers; open carefully. Vent periodically.
Avoid reaction with alkaloids, chloral hydrate, carbon dioxide, iodine, metallic salts, permanganates, chlorates, peroxides. Highly toxic and flammable hydrogen cyanide (HCN) is liberated on contact with incompatible materials. Decomposes to hydrogen cyanide (HCN) in presence of moist air.

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

Note: Depending on other risk factors, compatibility assessment based on the table above may not be relevant to storage situations, particularly where large volumes of dangerous goods are stored and handled. Reference should be made to the Safety Data Sheets for each substance or article and risks assessed accordingly.

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	potassium cyanide	Cyanides (as CN)	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	hydrogen cyanide	Hydrogen cyanide	Not Available	Not Available	10 ppm / 11 mg/m3	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
potassium cyanide	Not Available	Not Available	Not Available
hydrogen cyanide	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
potassium cyanide	25 mg/m3	Not Available
hydrogen cyanide	50 ppm	Not Available

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.

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

contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 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 unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure.
Chemical goggles.whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted.
Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.
Alternatively a gas mask may replace splash goggles and face shields.
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 protection

See Hand protection below

Hands/feet protection

Elbow length PVC gloves
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.
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.
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.
Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

	· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. · Contaminated gloves should be replaced. As defined in ASTM F-739-96 in any application, gloves are rated as: · Excellent when breakthrough time > 480 min · Good when breakthrough time > 20 min · Fair when breakthrough time < 20 min · Poor when glove material degrades For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: · Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. · Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential 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.
Body protection	See Other protection below
Other protection	Overalls. Eyewash unit. Barrier cream. Skin cleansing cream.

Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	- -	PAPR-P1 -
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow
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)

Respiratory protection for inorganic cyanides:
If inhalation risk exists, wear approved respirator.

Above 5 mg/m3: Minimum respiratory protection required
50 mg/m3 or less: Any supplied-air respirator, any self-contained breathing apparatus.
Greater than 50 mg/m3 or unknown concentrations: Self-contained breathing apparatus with a full facepiece operated in pressure demand or other positive pressure mode. A combination respirator which includes a Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure or continuous-flow mode and an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
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 deliquescent crystals or lumps. Slight almond-like odour when damp. Soluble in water, alcohol, methanol, glycerin. Liberates highly toxic hydrogen cyanide (HCN) on reaction with acids and acid fumes. Small amounts of HCN are given off on reaction with water. Odour threshold of HCN is 0.2-5ppm.

Physical state	Divided Solid	**Relative density (Water = 1)**	1.52 @ 16 C
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Applicable
pH (as supplied)	Not Applicable	**Decomposition temperature**	Not Applicable
Melting point / freezing point (°C)	634.5	**Viscosity (cSt)**	Not Applicable
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	65.12
Flash point (°C)	Not Applicable	**Taste**	Not Available
Evaporation rate	Not Applicable	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Applicable	**Surface Tension (dyn/cm or mN/m)**	Not Applicable
Lower Explosive Limit (%)	Not Applicable	**Volatile Component (%vol)**	Not Applicable
Vapour pressure (kPa)	Negligible at 2	**Gas group**	Not Available
Solubility in water	Reacts	**pH as a solution (1%)**	11 0.1N aqueous
Vapour density (Air = 1)	Not Applicable	**VOC g/L**	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Unstable in the presence of incompatible materials. Product is considered stable. Hazardous polymerisation will not occur. Storage in unsealed containers due to contact with atmospheric carbon dioxide and moisture.
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 dusts, generated by the material, during the course of normal handling, may produce severely toxic effects; these may be fatal. The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. 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. 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. Effects and symptoms caused by hydrogen cyanide depends on the intensity and duration of exposure. Short term inhalation of 20-40 ppm hydrogen cyanide may result in slight symptoms, while 270 ppm can be fatal in one minute. Inhalation of dusts, generated by the material during the course of normal handling, may produce severe damage to the health of the individual. Relatively small amounts absorbed from the lungs may prove fatal.

	As little as a few breaths of higher concentrations of hydrogen cyanide vapour, given off from moist material, may cause instant collapse and stop breathing. Potassium cyanide may be absorbed via all routes of exposure in lethal quantities of exposure. Potassium cyanide dissociates rapidly in the body to the CN- ion which inhibits the uptake of oxygen by the tissues thus causing asphyxia. An airborne concentration of 270 ppm can be fatal in 1 min. If death does not occur, recovery is usually complete
Ingestion	**Severely toxic effects** may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 5 gram may be fatal or may produce serious damage to the health of the individual. Cyanide poisoning can cause increased saliva output, nausea without vomiting, anxiety, confusion, vertigo, dizziness, stiffness of the lower jaw, convulsions, spasm, paralysis, coma and irregular heartbeat, and stimulation of breathing followed by failure. Often the skin becomes cyanosed (blue-grey), and this is often delayed. Contact with acids liberates very toxic gases
Skin Contact	Skin contact with the material may produce severely toxic effects; systemic effects may result following absorption and these may be fatal. There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Skin contact with cyanides may cause an itchy rash with blisters and scabs which may become infected. Solution of material in moisture on the skin, or perspiration, may markedly increase skin corrosion and accelerate tissue destruction Open cuts, abraded or irritated skin should not be exposed to this material 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. May be toxic if absorbed through the skin.
Eye	If applied to the eyes, this material causes severe eye damage. The material may be absorbed in toxic quantities by the eyes. High or repeated exposures to dust or vapour may cause severe eye damage.
Chronic	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. 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. Chronic exposure to cyanides and certain nitriles may result in interference to iodine uptake by thyroid gland and its consequent enlargement. This occurs following metabolic conversion of the cyanide moiety to thiocyanate.

	TOXICITY	IRRITATION
potassium cyanide	Dermal (rabbit) LD50: 2.34 mg/kg[1]	Not Available
	Inhalation(Rat) LC50; 0.035 mg/L4h[1]	
	Oral(Dog) LD50; 1.4 mg/kg[1]	
	TOXICITY	**IRRITATION**
hydrogen cyanide	Dermal (rabbit) LD50: ~2.34 mg/kg[1]	Not Available
	Inhalation(Human) LC50; ~0.103 mg/L4h[1]	
	Oral(Mouse) LD50; 0.4 mg/kg[2]	
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*	

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

	Endpoint	Test Duration (hr)	Species	Value	Source
potassium cyanide	NOEC(ECx)	672h	Fish	0.05mg/l	4
	EC50	72h	Algae or other aquatic plants	0.309-	4

				0.354mg/l	
	LC50	96h	Fish	0.004mg/L	4

hydrogen cyanide	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	NOEC(ECx)	480h	Fish	<0.005mg/l	4
	LC50	96h	Fish	0.018mg/l	1
	EC50	48h	Crustacea	0.13mg/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*

On the basis of available evidence concerning either toxicity, persistence, potential to accumulate and or observed environmental fate and behaviour, the material may present a danger, immediate or long-term and /or delayed, to the structure and/ or functioning of natural ecosystems.

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 the Alkali Metal Cyanides:

Atmospheric Fate: It is unknown if atmospheric photolysis is an important fate process for alkali metal cyanides. Hydrogen cyanide is very resistant to photolysis in normal sunlight. The most important reaction of hydrogen cyanide in air is the reaction with photochemically-generated hydroxyl radicals and subsequent rapid oxidation to carbon monoxide (CO) and nitric oxide (NO); photolysis and reaction with ozone are not important transformation processes and reaction with singlet oxygen is not a significant transformation process except at stratospheric altitudes. The residence time for the reaction of hydrogen cyanide vapor with hydroxyl radicals in the atmosphere is approximately 2 years.

Terrestrial Fate: Low concentrations of cyanide in soil biodegrade under aerobic conditions. Under anaerobic conditions, cyanides ions will denitrify to gaseous nitrogen. Complexation reactions with metal ions may occur in soil and cyanide ions are sorbed by various natural media, including clays, biological solids and sediments. Hydrogen cyanide and the alkali metal cyanides are not likely to be strongly sorbed onto sediments and suspended solids. Cyanides are fairly mobile in soil. Mobility is lowest in low pH soils with high concentrations of free iron oxides, positively charged particles and clays and highest in soils with high pH, high concentrations of free calcium carbonate (CaCO3), negatively charged particles and low clay content. In soils where cyanide levels are high enough to be toxic to microorganisms, this compound may leach into groundwater. Volatilization of hydrogen cyanide would be a significant loss mechanism from soil surfaces at a pH <9.2.

Aquatic Fate: The alkali metal cyanides are very soluble in water and readily dissociate. Depending on the pH of the water, the resulting cyanide ion may form hydrogen cyanide or react with various metals. The proportion of hydrogen cyanide formed from soluble cyanides increases as the water pH decreases. Volatilization is the dominant mechanism for the removal of free cyanide from water and is most effective under conditions of high temperatures, high dissolved oxygen levels, and at increased concentrations of atmospheric carbon dioxide. Insoluble metal cyanides are not expected to degrade to hydrogen cyanide. Oxidation, hydrolysis, and photolysis are the three predominant chemical processes that may cause loss of simple cyanides in aquatic media. Certain cyanides are oxidized to isocyanates by strong oxidizing agents which may be further hydrolyzed to ammonia and carbon dioxide; however, it has not yet been determined whether this is a significant fate process in waters containing peroxy radicals. Hydrogen cyanide can be hydrolyzed to formamide, which is subsequently hydrolyzed to ammonium and formate ions. Volatilization is a significant and probably dominant fate process for hydrogen cyanide and the most common alkali metal cyanides (e.g., sodium and potassium cyanide) in surface water. Copper (I) cyanide is removed from water predominantly by sedimentation and biodegradation. Volatilization is not an important fate process for cyanide in groundwater and is expected to persist for considerably longer periods of time in underground aquifers than in surface water. Photocatalytic oxidation may not be significant in natural waters. In clear water, or at water surfaces, some metallocyanides may decompose to the cyanide ion by photodissociation and subsequently form hydrogen cyanide. Biodegradation is an important transformation process for cyanide in natural surface waters, and is dependent on such factors as cyanide concentration, pH, temperature, nutrient availability and microbial acclimation.

Ecotoxicity: Cyanide is toxic to microorganisms in low concentration; however, acclimation increases tolerance. Actinomyces, Alcaligenes, Arthrobacter, Bacillus, Micrococcus, Neisseria, Paracoccus, Pseudomonas, and Thiobacillus bacteria are particularly effective at cyanide degradation. Certain metal cyanide complexes may bioaccumulate in aquatic organisms. It is difficult to evaluate the toxicologic significance of bioaccumulation of metal cyanide complexes because these compounds are much less toxic than soluble hydrogen cyanide, sodium cyanide, or potassium cyanide. There is no evidence of biomagnification of cyanides in the food chain and accumulation of cyanide in food webs is not expected.

Soil Guidelines: Dutch Criteria:
free cyanide: 1 mg/kg (target)
20 mg/kg (intervention)
complex cyanide (pH 5): 5 mg/kg (target)
50 mg/kg (intervention)

Air Quality Standards: no safe guidelines recommended due to carcinogenic properties.

DO NOT discharge into sewer or waterways.

The material is classified as an **ecotoxin*** because the ***Fish LC50 (96 hours)*** is less than or equal to 0.1 mg/l

** Classification of Substances as Ecotoxic (Dangerous to the Environment)*
Appendix 8, Table 1
Compiler's Guide for the Preparation of International Chemical Safety Cards: 1993 Commission of the European Communities

Marine Pollutant Fish LC50 (96 h): 25-180 mg/L Fish LC50 (96 h): blue gill sunfish 0.45-0.57 mg/l Extremely toxic Invertebrate LC50 (48 h): 0.18-6 mg/L Nitrif. inhib. : 75% inhib at 680mg/L

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
hydrogen cyanide	HIGH (Half-life = 360 days)	HIGH (Half-life = 891.33 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
hydrogen cyanide	LOW (LogKOW = -0.25)

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	Containers may still present a chemical hazard/ danger when empty. Return to supplier for reuse/ recycling if possible. Otherwise: 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. Where possible retain label warnings and SDS and observe all notices pertaining to the product. 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. 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. In most instances the supplier of the material should be consulted. **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. Care must be taken when using hypochlorite solution to destroy cyanide wastes by oxidation of cyanates because highly toxic cyanogen chloride may be formed. The reaction proceeds readily, even at high pH, but the secondary oxidation of cyanate to nitrogen and carbon dioxide is very pH dependent. At pH 11 it is slow but runs-away at pH 10-10.3. This procedure should avoid high pHs, excess of hypochlorite, and moderate or high concentrations of the hypochlorite. Addition of 0.5 ml of cyanide solution to 5 ml of stirred hypochlorite destroyed a gas meter with the violent evolution of gas. BRETHERICK L.: Handbook of Reactive Chemical Hazards CAUTION: Concentrated hypochlorite should not be mixed with concentrated cyanide solutions or solid cyanide because highly toxic cyanogen chloride gas will be released. Waste solutions may also be reacted with ferrous sulfate to form relatively non-toxic ferrocyanide. Recycle wherever possible or consult manufacturer for recycling options. Consult State Land Waste Management Authority for disposal. Bury residue in an authorised landfill. Recycle containers if possible, or dispose of in an authorised landfill.

SECTION 14 Transport information

Labels Required

	
Marine Pollutant	

HAZCHEM	2X

Land transport (ADG)

UN number	1680	
UN proper shipping name	POTASSIUM CYANIDE, SOLID	
Transport hazard class(es)	Class	6.1
	Subrisk	Not Applicable
Packing group	I	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	Not Applicable
	Limited quantity	0

Air transport (ICAO-IATA / DGR)

UN number	1680	
UN proper shipping name	Potassium cyanide, solid	
Transport hazard class(es)	ICAO/IATA Class	6.1
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	6L
Packing group	I	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	Not Applicable
	Cargo Only Packing Instructions	673
	Cargo Only Maximum Qty / Pack	50 kg
	Passenger and Cargo Packing Instructions	666
	Passenger and Cargo Maximum Qty / Pack	5 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Forbidden
	Passenger and Cargo Limited Maximum Qty / Pack	Forbidden

Sea transport (IMDG-Code / GGVSee)

UN number	1680	
UN proper shipping name	POTASSIUM CYANIDE, SOLID	
Transport hazard class(es)	IMDG Class	6.1
	IMDG Subrisk	Not Applicable
Packing group	I	
Environmental hazard	Marine Pollutant	
Special precautions for user	EMS Number	F-A , S-A
	Special provisions	Not Applicable
	Limited Quantities	0

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

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
potassium cyanide	Not Available
hydrogen cyanide	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type
potassium cyanide	Not Available
hydrogen cyanide	Not Available

SECTION 15 Regulatory information

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

potassium cyanide is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	Australian Inventory of Industrial Chemicals (AIIC)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 7	Chemical Footprint Project - Chemicals of High Concern List

hydrogen cyanide is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	Australian Inventory of Industrial Chemicals (AIIC)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 7	Chemical Footprint Project - Chemicals of High Concern List

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (potassium cyanide; hydrogen cyanide)
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 - FBEPH	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

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
ES: Exposure Standard
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
AIIC: Australian Inventory of Industrial Chemicals
DSL: Domestic Substances List
NDSL: Non-Domestic Substances List
IECSC: Inventory of Existing Chemical Substance in China
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
NLP: No-Longer Polymers
ENCS: Existing and New Chemical Substances Inventory
KECI: Korea Existing Chemicals Inventory
NZIoC: New Zealand Inventory of Chemicals
PICCS: Philippine Inventory of Chemicals and Chemical Substances
TSCA: Toxic Substances Control Act
TCSI: Taiwan Chemical Substance Inventory
INSQ: Inventario Nacional de Sustancias Químicas
NCI: National Chemical Inventory
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances