

# 5-[(Methylamino)methyl]-3-phenylisoxazole Apollo Scientific

Part Number: **OR14866** Version No: **1.1** Safety Data Sheet (Conforms to Annex II of REACH (1907/2006) - Regulation 2020/878) Chemwatch Hazard Alert Code: 3

Issue Date: **15/05/2022** Print Date: **02/08/2023** S.REACH.GBR.EN

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

### **1.1. Product Identifier**

Product name	5-[(Methylamino)methyl]-3-phenylisoxazole	
Chemical Name	N-Methyl-(3-phenylisoxazol-5-yl)methylamine	
Synonyms	Not Available	
Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	
Chemical formula	lot Available	
Other means of identification	Not Available	
CAS number	852431-00-6*	

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

Relevant identified uses	Not Available	
Uses advised against	inst No specific uses advised against are identified.	

### 1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	Apollo Scientific	
Address	Whitefield Road, Bredbury SK62QR United Kingdom	
Telephone	01614060505	
Fax	0161 406 0506	
Website	http://www.apolloscientific.co.uk/	
Email	sales@apolloscientific.co.uk	

### 1.4. Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	Not Available
Other emergency telephone numbers	Not Available

#### **SECTION 2 Hazards identification**

### 2.1. Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments <sup>[1]</sup>

H314 - Skin Corrosion/Irritation Category 1B, H290 - Corrosive to Metals Category 1, H318 - Serious Eye Damage/Eye Irritation Category 1

Legend: 1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

## 2.2. Label elements

Hazard pictogram(s)	
Signal word	Danger

### Hazard statement(s)

H314	Causes severe skin burns and eye damage.
H290	May be corrosive to metals.

#### Supplementary statement(s)

Not Applicable

### Precautionary statement(s) Prevention

P260	Do not breathe mist/vapours/spray.	
P264	Wash all exposed external body areas thoroughly after handling.	
P280	Wear protective gloves, protective clothing, eye protection and face protection.	
P234	Keep only in original packaging.	

#### Precautionary statement(s) Response

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or 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/doctor/physician/first aider.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

# Precautionary statement(s) Storage

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.

### 2.3. Other hazards

REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

### **SECTION 3 Composition / information on ingredients**

#### 3.1.Substances

1. CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	SCL / M-Factor	Nanoform Particle Characteristics
Not Available	100	5-[(Methylamino)methyl]- 3-phenylisoxazole	Not Applicable	Not Applicable	Not Available

Legend: 1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 3. Classification drawn from C&L; \* EU IOELVs available; [e] Substance identified as having endocrine disrupting properties

See 'Information on ingredients' in section 3.1

### **SECTION 4 First aid measures**

#### 4.1. Description of first aid measures 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. Eye Contact Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. For amines: If liquid amines come in contact with the eyes, irrigate immediately and continuously with low pressure flowing water, preferably from an eye wash fountain, for 15 to 30 minutes. • For more effective flushing of the eyes, use the fingers to spread apart and hold open the eyelids. The eyes should then be "rolled" or moved in all directions. Seek immediate medical attention, preferably from an ophthalmologist. 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. For amines: In case of major exposure to liquid amine, promptly remove any contaminated clothing, including rings, watches, and shoe, Skin Contact preferably under a safety shower. Wash skin for 15 to 30 minutes with plenty of water and soap. Call a physician immediately. Remove and dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing. Discard contaminated leather articles such as shoes, belts, and watchbands. Note to Physician: Treat any skin burns as thermal burns. After decontamination, consider the use of cold packs and topical antibiotics. 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. Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema. Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs). 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. Inhalation Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered. This must definitely be left to a doctor or person authorised by him/her. (ICSC13719) For amines: All employees working in areas where contact with amine catalysts is possible should be thoroughly trained in the administration of appropriate first aid procedures. Experience has demonstrated that prompt administration of such aid can minimize the effects of accidental exposure. Promptly move the affected person away from the contaminated area to an area of fresh air. Keep the affected person calm and warm, but not hot. If breathing is difficult, oxygen may be administered by a qualified person. If breathing stops, give artificial respiration. Call a physician at once. For advice, contact a Poisons Information Centre or a doctor at once. Urgent hospital treatment is likely to be needed. If swallowed do NOT induce vomiting. F If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. Ingestion Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Transport to hospital or doctor without delay. For amines: ▶ If liquid amine are ingested, have the affected person drink several glasses of water or milk. Do not induce vomiting. Immediately transport to a medical facility and inform medical personnel about the nature of the exposure. The decision of

whether to induce vomiting should be made by an attending physician.

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

See Section 11

#### 4.3. 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] For amines:

Certain amines may cause injury to the respiratory tract and lungs if aspirated. Also, such products may cause tissue destruction leading to stricture. If lavage is performed, endotracheal and/or esophagoscopic control is suggested.

- No specific antidote is known.
- Care should be supportive and treatment based on the judgment of the physician in response to the reaction of the patient.

Laboratory animal studies have shown that a few amines are suspected of causing depletion of certain white blood cells and their precursors in lymphoid tissue. These effects may be due to an immunosuppressive mechanism.

Some persons with hyperreactive airways (e.g., asthmatic persons) may experience wheezing attacks (bronchospasm) when exposed to airway irritants. Lung injury may result following a single massive overexposure to high vapour concentrations or multiple exposures to lower concentrations of any pulmonary irritant material.

Health effects of amines, such as skin irritation and transient corneal edema ("blue haze," "halo effect," "glaucopsia"), are best prevented by means of formal worker education, industrial hygiene monitoring, and exposure control methods. Persons who are highly sensitive to the triggering effect of non-specific irritants should not be assigned to jobs in which such agents are used, handled, or manufactured.

Medical surveillance programs should consist of a pre-placement evaluation to determine if workers or applicants have any impairments (e.g., hyperreactive airways or bronchial asthma) that would limit their fitness for work in jobs with potential for exposure to amines. A clinical baseline can be established at the time of this evaluation.

Periodic medical evaluations can have significant value in the early detection of disease and in providing an opportunity for health counseling.

- Medical personnel conducting medical surveillance of individuals potentially exposed to polyure than earnine catalysts should consider the following:
- Health history, with emphasis on the respiratory system and history of infections
- Physical examination, with emphasis on the respiratory system and the lymphoreticular organs (lymph nodes, spleen, etc.)
- Lung function tests, pre- and post-bronchodilator if indicated
- Total and differential white blood cell count
- Serum protein electrophoresis

Persons who are concurrently exposed to isocyanates also should be kept under medical surveillance.

Pre-existing medical conditions generally aggravated by exposure include skin disorders and allergies, chronic respiratory disease (e.g. bronchitis, asthma, emphysema), liver disorders, kidney disease, and eye disease.

Broadly speaking, exposure to amines, as characterised by amine catalysts, may cause effects similar to those caused by exposure to ammonia. As such, amines should be considered potentially injurious to any tissue that is directly contacted.

Inhalation of aerosol mists or vapors, especially of heated product, can result in chemical pneumonitis, pulmonary edema, laryngeal edema, and delayed scarring of the airway or other affected organs. There is no specific treatment.

Clinical management is based upon supportive treatment, similar to that for thermal burns.

Persons with major skin contact should be maintained under medical observation for at least 24 hours due to the possibility of delayed reactions.

Polyurethene Amine Catalysts: Guidelines for Safe Handling and Disposal Technical Bulletin June 2000

Alliance for Polyurethanes Industry

### 5.1. Extinguishing media

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

### 5.2. Special hazards arising from the substrate or mixture

result
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### 5.3. Advice for firefighters

Fire Fighting	<ul> <li>For amines:</li> <li>For firefighting, cleaning up large spills, and other emergency operations, workers must wear a self-contained breathing apparatus with full face-piece, operated in a pressure-demand mode.</li> <li>Airline and air purifying respirators should not be worn for firefighting or other emergency or upset conditions.</li> <li>Respirators should be used in conjunction with a respiratory protection program, which would include suitable fit testing and medical evaluation of the user.</li> </ul>
Fire/Explosion Hazard	<ul> <li>Combustible.</li> <li>Slight fire hazard when exposed to heat or flame.</li> <li>Heating may cause expansion or decomposition leading to violent rupture of containers.</li> <li>On combustion, may emit toxic fumes of carbon monoxide (CO).</li> <li>May emit acrid smoke.</li> <li>Mists containing combustible materials may be explosive.</li> <li>Combustion products include: </li> <li>, </li> <li>carbon dioxide (CO2) </li> <li>other pyrolysis products typical of burning organic material.</li> <li>May emit corrosive fumes.</li> </ul>

### **SECTION 6 Accidental release measures**

# 6.1. Personal precautions, protective equipment and emergency procedures

See section 8

# 6.2. Environmental precautions

See section 12

### 6.3. Methods and material for containment and cleaning up

for containment and cleaning up
<ul> <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 breathing vapours and contact with skin and eyes.</li> <li>Control personal contact with the substance, by using protective equipment.</li> <li>Contain and absorb spill with sand, earth, inert material or vermiculite.</li> <li>Wipe up.</li> <li>Place in a suitable, labelled container for waste disposal.</li> <li>for amines:</li> <li>If possible (i.e., without risk of contact or exposure), stop the leak.</li> <li>Contain the spilled material by diking, then neutralize.</li> <li>Next, absorb the neutralized product with clay, sawdust, vermiculite, or other inert absorbent and shovel into containers.</li> <li>Store the containers outdoors.</li> <li>Brooms and mops should be disposed of, along with any remaining absorbent, in accordance with all applicable federal, state, and local regulations and requirements.</li> <li>Decontamination of floors and other hard surfaces after the spilled material has been removed may be accomplished by using a 5% solution of acetic acid, followed by very hot water</li> <li>Dispose of the material in full accordance with all federal, state, and local laws and regulations governing the disposal of chemical wastes.</li> <li>Waste materials from an amine catalyst spill or leak may be "hazardous wastes" that are regulated under various laws.</li> </ul>
<ul> <li>For amines:</li> <li>First remove all ignition sources from the spill area.</li> <li>Have firefighting equipment nearby, and have firefighting personnel fully trained in the proper use of the equipment and in the procedures used in fighting a chemical fire.</li> <li>Spills and leaks of polyurethane amine catalysts should be contained by diking, if necessary, and cleaned up only by properly</li> </ul>

<ul> <li>trained and equipped personnel. All others should promptly leave the contaminated area and stay upwind.</li> <li>Protective equipment for cleanup crews should include appropriate respiratory protective devices and impervious clothing,</li> </ul>
<ul> <li>footwear, and gloves.</li> <li>All work areas should be equipped with safety showers and eyewash fountains in good working order.</li> </ul>
<ul> <li>Any material spilled or splashed onto the skin should be quickly washed off.</li> </ul>
Spills or releases may need to be reported to federal, state, and local authorities. This reporting contingency should be a part of a site s emergency response plan.
Protective equipment should be used during emergency situations whenever there is a likelihood of exposure to liquid amines or to excessive concentrations of amine vapor. "Emergency" may be defined as any occurrence, such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that results in an uncontrolled release of amine liquid or vapor.
Emergency protective equipment should include:
<ul> <li>Self-contained breathing apparatus, with full face-piece, operated in positive pressure or pressure-demand mode.</li> <li>Rubber gloves</li> </ul>
• • Long-sleeve coveralls or impervious full body suit
• • Head protection, such as a hood, made of material(s) providing protection against amine catalysts
<ul> <li>Firefighting personnel and other on-site Emergency Responders should be fully trained in Chemical Emergency Procedures.</li> <li>However back-up from local authorities should be sought</li> </ul>

#### 6.4. Reference to other sections

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

### **SECTION 7 Handling and storage**

### 7.1. Precautions for safe handling

Safe handling	<ul> <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>Avoid contact with moisture.</li> <li>Avoid contact with incompatible materials.</li> <li>When handling, DO NOT eat, drink or smoke.</li> <li>Keep containers securely sealed when not in use.</li> <li>Avoid physical damage to containers.</li> <li>Always wash hands with soap and water after handling.</li> <li>Work clothes should be laundered separately. Launder contaminated clothing before re-use.</li> <li>Use good occupational work practice.</li> <li>Observe manufacturer's storage and handling recommendations contained within this SDS.</li> <li>Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.</li> <li>DO NOT allow clothing wet with material to stay in contact with skin</li> </ul>
Fire and explosion protection	See section 5
Other information	<ul> <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>DO NOT store near acids, or oxidising agents</li> <li>No smoking, naked lights, heat or ignition sources.</li> </ul>

### 7.2. Conditions for safe storage, including any incompatibilities

Suitable container	<ul> <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> <li>For low viscosity materials</li> <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> <li>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):</li> <li>Removable head packaging;</li> <li>Cans with friction closures and</li> <li>low pressure tubes and cartridges may be used.</li> </ul>
	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.
Storage incompatibility	<ul> <li>Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.</li> <li>Avoid reaction with oxidising agents</li> <li>Annines are incompatible with:         <ul> <li>isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides.</li> <li>strong reducing agents such as hydrides, due to the liberation of flammable gas.</li> </ul> </li> <li>Amines possess a characteristic ammonia smell, liquid amines have a distinctive "fishy" smell. Amines are formally derivatives of ammonia, wherein one or more hydrogen atoms have been replaced by a substituent such as an alkyl or anyl group. Compounds with a nitrogen atom attached to a carbonyl group, thus having the structure R–CO–NR'R?, are called amides and have different chemical properties from amines.</li> <li>The water solubility of simple amines is enhanced by hydrogen bonding involving these lone electron pairs. Typically salts of ammonium compounds exhibit the following order of solubility in water: primary ammonium (RNH+3) &gt; secondary ammonium (R2NH+2) &gt; tertiary ammonium (R3NH+). Small alighatic amines display significant solubility in many solvents, whereas those with large substituents are lipophilic. Aromatic amines, such as aniline, have their lone pair electrons conjugated into the benzene ring, thus their tendency to engage in hydrogen bonding is diminished. Their boiling points are high and their solubility in water is low.</li> <li>Like ammonia, amines are bases. Compared to alkali metal hydroxides, amines are weaker.</li> <li>The basicity of amines depends on:</li> <li>The electronic properties of the substituents (alkyl groups enhance the basicity, aryl groups diminish it).</li> <li>The degree of solvation of the protonated amine, which includes steric hindrance by the groups diminish it).</li> <li>The degree of solvation of the protonated amine. Which includes steric hindrance by the groups on introgen.</li> <li>Owing</li></ul>
Hazard categories in accordance with Regulation (EC) No 1272/2008	Not Available
Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	Not Available

### 7.3. Specific end use(s)

See section 1.2

### **SECTION 8 Exposure controls / personal protection**

### 8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
Not Available	Not Available	Not Available

\* Values for General Population

#### **Occupational Exposure Limits (OEL)**

### INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Not Available						

### Not Applicable

### Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
5-[(Methylamino)methyl]-	Not Available	Not Available	Not Available

Ingredient	TEEL-1	TEEL-2		TEEL-3
3-phenylisoxazole				
Ingredient	Original IDLH		Revised IDLH	
5-[(Methylamino)methyl]- 3-phenylisoxazole	Not Available		Not Available	
3.2. Exposure 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:
			All Opeeu.
	solvent, vapours, degreasing etc., evaporating from tank (ir	n still air).	0.25-0.5 m/s (50-100 f/min.)
8.2.1. Appropriate ngineering controls	aerosols, fumes from pouring operations, intermittent conta welding, spray drift, plating acid fumes, pickling (released a generation)		0.5-1 m/s (100-200 f/min.)
	direct spray, spray painting in shallow booths, drum filling, d discharge (active generation into zone of rapid air motion)	conveyer loading, crusher dusts, gas	1-2.5 m/s (200-500 f/min.)
	grinding, abrasive blasting, tumbling, high speed wheel ger velocity into zone of very high rapid air motion).	nerated dusts (released at high initial	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: Small hood-local control only 4: Large hood or large air mass in motion

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

8.2.2. Individual protection measures, such as personal protective equipment

Eve and face protection

engineering contr



- Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- Full face shield may be required for supplementary but never for primary protection of eyes.
- 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]. For amines:

SPECIAL PRECAUTION:

Because amines are alkaline materials that can cause rapid and severe tissue damage, wearing of contact lenses while

	<ul> <li>working with amines is strongly discouraged. Wearing such lenses can prolong contact of the eye tissue with the amine, thereby causing more severe damage.</li> <li>Appropriate eye protection should be worn whenever amines are handled or whenever there is any possibility of direct contact with liquid products, vapors, or aerosol mists.</li> <li>CAUTION:</li> <li>Ordinary safety glasses or face-shields will not prevent eye irritation from high concentrations of vapour.</li> <li>In operations where positive-pressure, air-supplied breathing apparatus is not required, all persons handling liquid amine catalysts or other polyurethane components in open containers should wear chemical workers safety goggles.</li> <li>Eyewash fountains should be installed, and kept in good working order, wherever amines are used.</li> </ul>
Skin protection	See Hand protection below
Hands/feet protection	<ul> <li>Wear chemical protective gloves, e.g., PVC.</li> <li>Wear safety footwear or safety gumbots, e.g., Rubber</li> <li>When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.</li> <li>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.</li> <li>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.</li> <li>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 molisturiser is recommended.</li> <li>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: <ul> <li>threquency and duration of contact,</li> <li>chemical resistance of glove material,</li> <li>glove thickness and</li> <li>dexterity</li> </ul> </li> <li>Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).</li> <li>When only bried contact is expected, 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.</li> <li>Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.</li> <li>Contaminated gloves should be replaced.</li> <li>As defined in ASTM F73-96 in any application, gloves are rated as:</li> <li>Excellent when breakthrough time &gt; 20 min</li> <li>For owhen glove material degrades</li> <li>For owhen glove material degrades</li> <li>For owhen glove material deg</li></ul>
Body protection	See Other protection below
Other protection	<ul> <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>

# **Respiratory protection**

Type AK-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, 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
up to 10	1000	AK-AUS / Class1 P2	-
up to 50	1000	-	AK-AUS / Class 1 P2
up to 50	5000	Airline *	-
up to 100	5000	-	AK-2 P2
up to 100	10000	-	AK-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(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

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

- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

Where engineering controls are not feasible and work practices do not reduce airborne amine concentrations below recommended exposure limits, appropriate respiratory protection should be used. In such cases, air-purifying respirators equipped with cartridges designed to protect against amines are recommended. 76ak-p()

#### 8.2.3. Environmental exposure controls

See section 12

### **SECTION 9** Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Appearance	Yellow		
Physical state	Liquid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
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 Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Not Available	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available
Nanoform Solubility	Not Available	Nanoform Particle Characteristics	Not Available
Particle Size	Not Available		

### 9.2. Other information

Not Available

### **SECTION 10 Stability and reactivity**

10.1.Reactivity	See section 7.2
10.2. Chemical stability	<ul> <li>Unstable in the presence of incompatible materials.</li> <li>Product is considered stable.</li> <li>Hazardous polymerisation will not occur.</li> </ul>
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

# **SECTION 11 Toxicological information**

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 Information on toxicological effects

	occupational exposure.		
	cusotance accumulation, in the numari body, may occur and may	adde come concern rollowing repeated or long-term	
Chronic	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 Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems.		
Eye	The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. If applied to the eyes, this material causes severe eye damage. Vapours of volatile amines irritate the eyes, causing excessive secretion of tears, inflammation of the conjunctiva and slight swelling of the cornea, resulting in "halos" around lights. This effect is temporary, lasting only for a few hours. However this condition can reduce the efficiency of undertaking skilled tasks, such as driving a car. Direct eye contact with liquid volatile amines may produce eye damage, permanent for the lighter species.		
Skin Contact	The material can produce chemical burns following direct contact with the skin. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Volatile amine vapours produce irritation and inflammation of the skin. Direct contact can cause burns. 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.		
Ingestion	The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion. The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.		
Inhaled	The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of amine vapours may cause irritation of the mucous membrane of the nose and throat, and lung irritation with respiratory distress and cough. Swelling and inflammation of the respiratory tract is seen in serious cases; with headache, nausea, faintness and anxiety. The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by inhalation". This is becaus of the lack of corroborating animal or human evidence.		

5-[(Methylamino)methyl]-	TOXICITY	IRRITATION
3-phenylisoxazole	Not Available	Not Available
Legend:	<ol> <li>Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS.</li> <li>Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances</li> </ol>	

5-[(Methylamino)methyl]-3-phenylisoxazole 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

Acuto Toxicity	X	Carcinogenicity	X
Acute Toxicity	<b>v</b>	Corolnogenialty	~
	gastrointestinal tract, diarrhea, dizziness, drowsing	ess, thirst, collapse of circulation,	coma and even death.
	and the lungs. Affected people may also experience	•	e e
	burns of the mouth, throat, gullet and gastrointesti	•	0 0
	Ingestion: Amine catalysts have moderate to seve	•	
	concentrations that do not cause respiratory irritat	tion.	
	temporary and usually disappear when exposure	ends. Some people may experier	ice this effect even when exposed to
	manifests as a blurred or foggy vision with a blue		
	Exposed persons may experience excessive teari		conjunctiva, and swelling of the cornea, whic
	with liquid amine may cause severe irritation and t products may result in mechanical irritation, pain a		iy lead to billioness. Contact with solid
	Eye contact: Amine catalysts are alkaline and thei		
	usually temporary.	ta and a state of the state	
	of the skin, hives, and facial swelling. These symp	otoms may be related to the pharr	nacological action of the amines, and they a
	of the amines though skin exposure may include h		, , ,
	sensitization. Sensitised persons should avoid all		, 6
	irritation and injury, from simple redness and swell exposure may also result in severe cumulative ski		
	Skin contact: Skin contact with amine catalysts po		
	include asthma, bronchitis and emphysema.		
	vapours. Such situations include leaks in fitting or	transfer lines. Medical conditions	generally aggravated by inhalation exposur
	Inhalation hazards are increased when exposure	to amine catalysts occurs in situa	tions that produce aerosols, mists or heated
	exposure.	- ,	
	Products with higher vapour pressures may reach	higher concentrations in the air,	and this increases the likelihood of worker
	bronchi, and immunologic lung disease.		
	very small amounts of vapours. Once sensitized, t overexposure may lead to permanent lung injury,		•
	and my experience distress while breathing, include	-	
	While most polyurethane amine catalysts are not s	,	,
	blood and central nervous system disorders in ani		
	to some amines may result in liver disorders, jaun	v	e amines have been shown to cause kidney,
	drowsiness, sore throat, inflammation of the brond		
	nose, coughing, difficulty in breathing and chest pa	ain. Chronic exposure via inhalati	on may cause headache, nausea, vomiting,
	lungs. Higher concentrations of certain amines ca	n produce severe respiratory irrita	ation, characterized by discharge from the
	Inhalation: Inhaling vapours may result in moderate	•	
	There are generally four routes of possible or pote		ontact, eye contact, and swallowing.
	(hives) and swelling of the face, which are usually		
	headache, nausea, faintness, anxiety, a decrease		
	Many amine-based compounds can cause release effects, including constriction of the bronchi or ast		
	Overexposure to most of these materials may cau		e trieses elleveis en el ettere els siste
		1 1 10 11 1	
	The disorder is characterized by difficulty breathin	ng, cough and mucus production.	

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

Data either not available or does not fill the criteria for classification
 Data available to make classification

### 11.2 Information on other hazards

### 11.2.1. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

#### 11.2.2. Other information

See Section 11.1

### **SECTION 12 Ecological information**

12.1. Toxicity

Species

	Not Available	Not Available	Not Available	Not Available	Not Available
Legend:	4. US EPA, E		Registered Substances - Ecotoxicological Info CETOC Aquatic Hazard Assessment Data 6. I n Data 8. Vendor Data		

Prevent, by any means available, spillage from entering drains or water courses. **DO NOT** discharge into sewer or waterways.

### 12.2. Persistence and degradability

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

#### 12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

# 12.4. Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

### 12.5. Results of PBT and vPvB assessment

	Р	В	Т
Relevant available data	Not Available	Not Available	Not Available
PBT	×	×	×
vPvB	×	×	×
PBT Criteria fulfilled?			No
vPvB			No

### 12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

#### 12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

### **SECTION 13 Disposal considerations**

# 13.1. Waste treatment methods

	Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
	A Hierarchy of Controls seems to be common - the user should investigate:
	▶ Reduction
	▶ Reuse
	▶ Recycling
	▶ Disposal (if all else fails)
	This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it
	has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life
Product / Packaging	considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, an
disposal	recycling or reuse may not always be appropriate.
	DO NOT allow wash water from cleaning or process equipment to enter drains.
	It may be necessary to collect all wash water for treatment before disposal.
	In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
	Where in doubt contact the responsible authority.
	► Recycle wherever possible.
	Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitab
	treatment or disposal facility can be identified.
	Treat and neutralise at an approved treatment plant.
	Treatment should involve: Neutralisation with suitable dilute acid followed by: burial in a land-fill specifically licensed to acce

	chemical and / or pharmaceutical wastes or Incineration in a licensed apparatus (after admixture with suitable combustible material).  Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.
Waste treatment options	Not Available
Sewage disposal options	Not Available

# **SECTION 14 Transport information**

### Labels Required

Marine Pollutant	NO
HAZCHEM	2X

# Land transport (ADR-RID)

14.1. UN number or ID number	2735			
14.2. UN proper shipping name	AMINES, LIQUID,	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.		
14.3. Transport hazard class(es)	Class 8			
	Subsidiary risk Not Applicable			
14.4. Packing group	Ш	11		
14.5. Environmental hazard	Not Applicable			
	Hazard identifica	tion (Kemler)	80	
14.6. Special precautions for user	Classification code		C7	
	Hazard Label		8	
	Special provisions		274	
	Limited quantity		5 L	
	Tunnel Restrictio	on Code	3 (E)	

# Air transport (ICAO-IATA / DGR)

· · ·					
14.1. UN number	2735				
14.2. UN proper shipping name	Amines, liquid, corrosive, n.o.s. *; Polyamines, liquid, corrosive, n.o.s. *				
14.3. Transport hazard class(es)	ICAO/IATA Class 8				
	ICAO / IATA Subrisk	risk Not Applicable			
	ERG Code 8L				
14.4. Packing group	11				
14.5. Environmental hazard	Not Applicable				
	Special provisions		A3 A803		
	Cargo Only Packing Ir	nstructions	856		
	Cargo Only Maximum	Qty / Pack	60 L		
14.6. Special precautions for user	Passenger and Cargo	Packing Instructions	852		
	Passenger and Cargo	Maximum Qty / Pack	5 L		
	Passenger and Cargo	Limited Quantity Packing Instructions	Y841		
	Passenger and Cargo	Limited Maximum Qty / Pack	1 L		

### Sea transport (IMDG-Code / GGVSee)

14.1. UN number	2735			
14.2. UN proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.			
14.3. Transport hazard	IMDG Class 8	3		
class(es)	IMDG Subrisk	IMDG Subrisk Not Applicable		
14.4. Packing group				
14.5. Environmental hazard	Not Applicable			
	EMS Number	F-A, S-B		
14.6. Special precautions for user	Special provisions	223 274		
	Limited Quantities	5 L		

### Inland waterways transport (ADN)

14.1. UN number	2735		
14.2. UN proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S.; POLYAMINES, LIQUID, CORROSIVE, N.O.S.		
14.3. Transport hazard class(es)	8 Not Applicable		
14.4. Packing group	III		
14.5. Environmental hazard	Not Applicable		
	Classification code	C7	
	Special provisions	274	
14.6. Special precautions for user	Limited quantity	5 L	
	Equipment required	PP, EP	
	Fire cones number	0	

#### 14.7. Maritime transport in bulk according to IMO instruments

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

Not Applicable

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

Product name
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#### 14.7.3. Transport in bulk in accordance with the IGC Code

Product name
--------------

#### **SECTION 15 Regulatory information**

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

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

### Information according to 2012/18/EU (Seveso III):

Seveso Category Not Available

# 15.2. Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

# ECHA SUMMARY

Not Applicable

### **National Inventory Status**

National Inventory	Status		
Australia - AIIC / Australia Non-Industrial Use	Not Available		
Canada - DSL	Not Available		
Canada - NDSL	Not Available		
China - IECSC	Not Available		
Europe - EINEC / ELINCS / NLP	Not Available		
Japan - ENCS	Not Available		
Korea - KECI	Not Available		
New Zealand - NZIoC	Not Available		
Philippines - PICCS	Not Available		
USA - TSCA	Not Available		
Taiwan - TCSI	Not Available		
Mexico - INSQ	Not Available		
Vietnam - NCI	Not Available		
Russia - FBEPH	Not Available		
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.		

### **SECTION 16 Other information**

Revision Date	15/05/2022
Initial Date	15/05/2022

### Full text Risk and Hazard codes

#### 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.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

- EN 166 Personal eye-protection
- EN 340 Protective clothing
- EN 374 Protective gloves against chemicals and micro-organisms
- EN 13832 Footwear protecting against chemicals
- EN 133 Respiratory protective devices

#### Definitions and abbreviations

- $\ensuremath{\mathsf{PC}}$  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 Powered by AuthorITe, from Chemwatch.