



## 2,4-Dichloroaniline

### Apollo Scientific

Part Number: **OR9687**

Version No: **2.2**

Safety Data Sheet

Chemwatch Hazard Alert Code: **3**

Issue Date: **28/06/2023**

Print Date: **28/06/2023**

S.GHS.GB-NIR.EN

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

### Product Identifier

Product name	2,4-Dichloroaniline
Chemical Name	2,4-dichloroaniline
Synonyms	Not Available
Proper shipping name	DICHLOROANILINES, SOLID
Chemical formula	C6H5Cl2N
Other means of identification	Not Available
CAS number	554-00-7*

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

Relevant identified uses	Not Available
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### Details of the manufacturer or supplier of the safety data sheet

Registered company name	Apollo Scientific	Apollo Scientific Ltd
Address	Whitefield Road, Bredbury SK62QR United Kingdom	Whitefield Road, Bredbury SK6 2QR United Kingdom (NI)
Telephone	01614060505	+44(0) 161 406 0505
Fax	0161 406 0506	Not Available
Website	<a href="http://www.apolloscientific.co.uk/">http://www.apolloscientific.co.uk/</a>	<a href="http://apolloscientific.co.uk">apolloscientific.co.uk</a>
Email	<a href="mailto:sales@apolloscientific.co.uk">sales@apolloscientific.co.uk</a>	<a href="mailto:sales@apolloscientific.co.uk">sales@apolloscientific.co.uk</a>

### Emergency telephone number

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

## SECTION 2 Hazards identification

### Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments [1]	H311 - Acute Toxicity (Dermal) Category 3, H373 - Specific Target Organ Toxicity - Repeated Exposure Category 2, H400 - Hazardous to the Aquatic Environment Acute Hazard Category 1, H331 - Acute Toxicity (Inhalation) Category 3, H410 - Hazardous to the Aquatic Environment Long-Term Hazard Category 1, H301 - Acute Toxicity (Oral) Category 3
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## 2,4-Dichloroaniline

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

## Label elements

Hazard pictogram(s)	  
Signal word	<b>Danger</b>

## Hazard statement(s)

H311	Toxic in contact with skin.
H373	May cause damage to organs through prolonged or repeated exposure.
H331	Toxic if inhaled.
H410	Very toxic to aquatic life with long lasting effects.
H301	Toxic if swallowed.

## Precautionary statement(s) Prevention

P260	Do not breathe dust/fume.
P264	Wash all exposed external body areas thoroughly after handling.
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 and protective clothing.
P273	Avoid release to the environment.

## Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P330	Rinse mouth.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P311	Call a POISON CENTER/doctor/physician/first aider.
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
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.
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## SECTION 3 Composition / information on ingredients

## Substances

CAS No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	SCL / M-Factor
554-00-7*	100	<u>2,4-Dichloroaniline</u>	Acute Toxicity (Dermal) Category 3, Specific Target Organ Toxicity - Repeated Exposure Category 2, Hazardous to the Aquatic Environment Acute Hazard Category 1, Acute Toxicity (Inhalation) Category 3, Hazardous to the Aquatic Environment Long-Term Hazard Category 1, Acute Toxicity (Oral) Category 3; H311, H373, H331, H410, H301 <sup>[1]</sup>	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

## Mixtures

## 2,4-Dichloroaniline

See section above for composition of Substances

## SECTION 4 First aid measures

### Description of first aid measures

<b>Eye Contact</b>	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> <li>▸ Immediately hold eyelids apart and flush the eye continuously with running water.</li> <li>▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</li> <li>▸ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.</li> <li>▸ Transport to hospital or doctor without delay.</li> <li>▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</li> </ul>
<b>Skin Contact</b>	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> <li>▸ Flush skin and hair with running water (and soap if available).</li> <li>▸ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▸ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▸ Lay patient down. Keep warm and rested.</li> <li>▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▸ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</li> <li>▸ Transport to hospital, or doctor, without delay.</li> </ul>
<b>Ingestion</b>	<ul style="list-style-type: none"> <li>▸ <b>IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.</b></li> <li>▸ For advice, contact a Poisons Information Centre or a doctor.</li> <li>▸ Urgent hospital treatment is likely to be needed.</li> <li>▸ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.</li> <li>▸ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist.</li> <li>▸ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS.</li> </ul> <p><b>Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:</b></p> <ul style="list-style-type: none"> <li>▸ <b>INDUCE</b> vomiting with fingers down the back of the throat, <b>ONLY IF CONSCIOUS</b>. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> </ul> <p><b>NOTE:</b> Wear a protective glove when inducing vomiting by mechanical means.</p>

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

The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methaemoglobin.

- Most produce a peak effect within 30 minutes.
- Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methaemoglobin.
- Initial attention should be directed towards improving oxygen delivery, with assisted ventilation, if necessary. Hyperbaric oxygen has not demonstrated conclusive benefits.
- Institute cardiac monitoring, especially in patients with coronary artery or pulmonary disease.
- Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise dopamine may be needed.
- Naloxone, glucose and thiamine should be given if a multiple ingestion is suspected.
- Decontaminate using Ipecac Syrup for alert patients or lavage for obtunded patients who present within 2-4 hours of ingestion.
- Symptomatic patients with methaemoglobin levels over 30% should receive methylene blue. (Cyanosis alone, is not an indication for treatment). The usual dose is 1-2 mg/kg of a 1% solution (10 mg/ml) IV over 5 minutes; repeat, using the same dose if symptoms of hypoxia fail to subside within 1 hour.

[Ellenhorn and Barceloux: Medical Toxicology]

#### BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker who has been exposed at the Exposure Standard (ES or TLV):

Determinant	Index	Sampling Time	Comments
1. Methaemoglobin in blood	1.5% of haemoglobin	During or end of shift	B,NS,SQ

B: Background levels occur in specimens collected from subjects **NOT** exposed

NS: Non-specific determinant; also observed after exposure to other materials

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SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

Symptoms of vasodilation and reflex tachycardia may present following organic nitrate overdose; most organic nitrates are extensively metabolised by hydrolysis to inorganic nitrites. Organic nitrates and nitrites are readily absorbed through the skin, lungs, mucosa and gastro-intestinal tract.

**SECTION 5 Firefighting measures****Extinguishing media**

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

**Special hazards arising from the substrate or mixture**

<b>Fire Incompatibility</b>	None known.
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**Advice for firefighters**

<b>Fire Fighting</b>	<ul style="list-style-type: none"><li>▸ Alert Fire Brigade and tell them location and nature of hazard.</li><li>▸ Wear breathing apparatus plus protective gloves in the event of a fire.</li><li>▸ Prevent, by any means available, spillage from entering drains or water courses.</li><li>▸ Use fire fighting procedures suitable for surrounding area.</li><li>▸ <b>DO NOT</b> approach containers suspected to be hot.</li><li>▸ Cool fire exposed containers with water spray from a protected location.</li><li>▸ If safe to do so, remove containers from path of fire.</li><li>▸ Equipment should be thoroughly decontaminated after use.</li></ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"><li>▸ Non combustible.</li><li>▸ Not considered a significant fire risk, however containers may burn.</li></ul> May emit poisonous fumes.

**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**

<b>Minor Spills</b>	<ul style="list-style-type: none"><li>▸ Remove all ignition sources.</li><li>▸ Clean up all spills immediately.</li><li>▸ Avoid contact with skin and eyes.</li><li>▸ Control personal contact with the substance, by using protective equipment.</li><li>▸ Use dry clean up procedures and avoid generating dust.</li><li>▸ Place in a suitable, labelled container for waste disposal.</li></ul>
<b>Major Spills</b>	

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

**SECTION 7 Handling and storage****Precautions for safe handling**

<b>Safe handling</b>	<ul style="list-style-type: none"><li>▸ Avoid all personal contact, including inhalation.</li><li>▸ Wear protective clothing when risk of exposure occurs.</li><li>▸ Use in a well-ventilated area.</li><li>▸ Prevent concentration in hollows and sumps.</li><li>▸ <b>DO NOT</b> enter confined spaces until atmosphere has been checked.</li><li>▸ <b>DO NOT</b> allow material to contact humans, exposed food or food utensils.</li><li>▸ Avoid contact with incompatible materials.</li><li>▸ <b>When handling, DO NOT</b> 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></ul>
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	<ul style="list-style-type: none"><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></ul>
Other information	<ul style="list-style-type: none"><li>▶ Store in original containers.</li><li>▶ Keep containers securely sealed.</li><li>▶ Store in a cool, dry, well-ventilated area.</li><li>▶ Store away from incompatible materials and foodstuff containers.</li><li>▶ Protect containers against physical damage and check regularly for leaks.</li><li>▶ Observe manufacturer's storage and handling recommendations contained within this SDS.</li></ul>

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"><li>▶ Lined metal can, lined metal pail/ can.</li><li>▶ Plastic pail.</li><li>▶ Polyliner drum.</li><li>▶ Packing as recommended by manufacturer.</li><li>▶ Check all containers are clearly labelled and free from leaks.</li></ul> <p>For low viscosity materials</p> <ul style="list-style-type: none"><li>▶ Drums and jerricans must be of the non-removable head type.</li><li>▶ Where a can is to be used as an inner package, the can must have a screwed enclosure.</li></ul> <p>For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):</p> <ul style="list-style-type: none"><li>▶ Removable head packaging;</li><li>▶ Cans with friction closures and</li><li>▶ low pressure tubes and cartridges</li></ul> <p>may be used.</p> <p>-</p> <p>Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *.</p> <p>-</p> <p>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 *.</p> <p>-</p> <p>* unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.</p> <p>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.</p>
Storage incompatibility	<p>None known</p> <ul style="list-style-type: none"><li>▶ Light sensitive</li></ul>

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
2,4-Dichloroaniline	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
2,4-Dichloroaniline	Not Available	Not Available


Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
2,4-Dichloroaniline	E	≤ 0.01 mg/m³

Notes:	Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.
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Exposure controls

## 2,4-Dichloroaniline

	<p>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.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>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.</p> <p>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.</p> <p>An approved self contained breathing apparatus (SCBA) may be required in some situations.</p> <p>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.</p> <table border="1" data-bbox="389 678 1485 976"> <tr> <th>Type of Contaminant:</th><th>Air Speed:</th></tr> <tr> <td>solvent, vapours, degreasing etc., evaporating from tank (in still air).</td><td>0.25-0.5 m/s (50-100 f/min.)</td></tr> <tr> <td>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)</td><td>0.5-1 m/s (100-200 f/min.)</td></tr> <tr> <td>direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)</td><td>1-2.5 m/s (200-500 f/min.)</td></tr> <tr> <td>grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).</td><td>2.5-10 m/s (500-2000 f/min.)</td></tr> </table> <p>Within each range the appropriate value depends on:</p> <table border="1" data-bbox="389 1037 1174 1227"> <tr> <th>Lower end of the range</th><th>Upper end of the range</th></tr> <tr> <td>1: Room air currents minimal or favourable to capture</td><td>1: Disturbing room air currents</td></tr> <tr> <td>2: Contaminants of low toxicity or of nuisance value only.</td><td>2: Contaminants of high toxicity</td></tr> <tr> <td>3: Intermittent, low production.</td><td>3: High production, heavy use</td></tr> <tr> <td>4: Large hood or large air mass in motion</td><td>4: Small hood-local control only</td></tr> </table> <p>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.</p>	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.)	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
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<b>Individual protection measures, such as personal protective equipment</b>																					
<b>Eye and face protection</b>	<ul style="list-style-type: none"> <li>▶ Safety glasses with side shields</li> <li>▶ Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]</li> <li>▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. 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].</li> </ul>																				
<b>Skin protection</b>	See Hand protection below																				
<b>Hands/feet protection</b>	<p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:</p> <ul style="list-style-type: none"> <li>· frequency and duration of contact,</li> </ul>																				

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- 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.

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber

**Body protection** See Other protection below

**Other protection**

- Overalls.
- Eyewash unit.
- Barrier cream.
- Skin cleansing cream.

**Respiratory protection**

Type -P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, 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(SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia(NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

**SECTION 9 Physical and chemical properties**

## 2,4-Dichloroaniline

## Information on basic physical and chemical properties

Appearance	Not Available		
Physical state	Solid	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)	60-62	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	245	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 Applicable
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

## SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> <li>▸ Unstable in the presence of incompatible materials.</li> <li>▸ Product is considered stable.</li> <li>▸ Hazardous polymerisation will not occur.</li> </ul>
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

## SECTION 11 Toxicological information

## Information on toxicological effects

Inhaled	<p>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. Inhalation of vapours, aerosols (mists, fumes) or 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. 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.</p>
Ingestion	<p>Accidental ingestion of the material may be seriously damaging to the health of the individual; animal experiments indicate that ingestion of less than 40 gram may be fatal.</p> <p>The substance and/or its metabolites may bind to haemoglobin inhibiting normal uptake of oxygen. This condition, known as "methaemoglobinemia", is a form of oxygen starvation (anoxia).</p> <p>Symptoms include cyanosis (a bluish discolouration skin and mucous membranes) and breathing difficulties. Symptoms may not be evident until several hours after exposure.</p>



## 2,4-Dichloroaniline

	At about 15% concentration of blood methaemoglobin there is observable cyanosis of the lips, nose and earlobes. Symptoms may be absent although euphoria, flushed face and headache are commonly experienced. At 25-40%, cyanosis is marked but little disability occurs other than that produced on physical exertion. At 40-60%, symptoms include weakness, dizziness, lightheadedness, increasingly severe headache, ataxia, rapid shallow respiration, drowsiness, nausea, vomiting, confusion, lethargy and stupor. Above 60% symptoms include dyspnea, respiratory depression, tachycardia or bradycardia, and convulsions. Levels exceeding 70% may be fatal.
<b>Skin Contact</b>	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. 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.
<b>Eye</b>	Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.
<b>Chronic</b>	Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems.

**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

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

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

## SECTION 12 Ecological information

## Toxicity

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

Very toxic to aquatic organisms.

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.

**DO NOT discharge into sewer or waterways.**

## Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
2,4-Dichloroaniline	HIGH	HIGH

## Bioaccumulative potential

Ingredient	Bioaccumulation
2,4-Dichloroaniline	LOW (BCF = 30)

## Mobility in soil

Ingredient	Mobility
2,4-Dichloroaniline	LOW (KOC = 119.9)



SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	<div><div>▶ Recycle wherever possible or consult manufacturer for recycling options.</div><div>▶ Consult State Land Waste Management Authority for disposal.</div><div>▶ Bury residue in an authorised landfill.</div><div>▶ Recycle containers if possible, or dispose of in an authorised landfill.</div></div>
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SECTION 14 Transport information

Labels Required

	
Marine Pollutant	

Land transport (ADR-RID)

UN number or ID number	3442		
UN proper shipping name	DICHLOROANILINES, SOLID		
Transport hazard class(es)	Class	6.1	
	Subsidiary risk	Not Applicable	
Packing group	II		
Environmental hazard	Environmentally hazardous		
Special precautions for user	Hazard identification (Kemler)	60	
	Classification code	T2	
	Hazard Label	6.1	
	Special provisions	279	
	Limited quantity	500 g	
	Tunnel Restriction Code	2 (D/E)	

Air transport (ICAO-IATA / DGR)

UN number	3442		
UN proper shipping name	Dichloroanilines, solid		
Transport hazard class(es)	ICAO/IATA Class	6.1	
	ICAO / IATA Subrisk	Not Applicable	
	ERG Code	6L	
Packing group	II		
Environmental hazard	Environmentally hazardous		
Special precautions for user	Special provisions	A113	
	Cargo Only Packing Instructions	676	
	Cargo Only Maximum Qty / Pack	100 kg	
	Passenger and Cargo Packing Instructions	669	
	Passenger and Cargo Maximum Qty / Pack	25 kg	
	Passenger and Cargo Limited Quantity Packing Instructions	Y644	
	Passenger and Cargo Limited Maximum Qty / Pack	1 kg	

Sea transport (IMDG-Code / GGVSee)

UN number	3442		
UN proper shipping name	DICHLOROANILINES, SOLID		
Transport hazard class(es)	IMDG Class	6.1	
	IMDG Subrisk	Not Applicable	
Packing group	II		
Environmental hazard	Marine Pollutant		
Special precautions for user	EMS Number	F-A, S-A	
	Special provisions	279	
	Limited Quantities	500 g	

Inland waterways transport (ADN)

UN number	3442		
UN proper shipping name	DICHLOROANILINES, SOLID		
Transport hazard class(es)	6.1	Not Applicable	
Packing group	II		
Environmental hazard	Environmentally hazardous		
Special precautions for user	Classification code	T2	
	Special provisions	279; 802	
	Limited quantity	500 g	
	Equipment required	PP, EP	
	Fire cones number	2	

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
2,4-Dichloroaniline	Not Available

Transport in bulk in accordance with the IGC Code

Product name	Ship Type
2,4-Dichloroaniline	Not Available

SECTION 15 Regulatory information

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

2,4-Dichloroaniline is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List	European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
Europe EC Inventory	European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (2,4-Dichloroaniline)
China - IECSC	Yes

## 2,4-Dichloroaniline

National Inventory	Status
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	No (2,4-Dichloroaniline)
Vietnam - NCI	Yes
Russia - FBEPH	Yes
<b>Legend:</b>	<i>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.</i>

## SECTION 16 Other information

Revision Date	28/06/2023
Initial Date	28/06/2023

## SDS Version Summary

Version	Date of Update	Sections Updated
1.2	28/06/2023	CAS Number, Toxicological information - Chronic Health, Disposal considerations - Disposal, Exposure controls / personal protection - Engineering Control, Ecological Information - Environmental, Firefighting measures - Fire Fighter (extinguishing media), Firefighting measures - Fire Fighter (fire/explosion hazard), Composition / information on ingredients - Ingredients, Identification of the substance / mixture and of the company / undertaking - Supplier Information, Identification of the substance / mixture and of the company / undertaking - Synonyms

## 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

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

AII: Australian Inventory of Industrial Chemicals

DSL: Domestic Substances List

**2,4-Dichloroaniline**

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

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]**

<b>Classification according to regulation (EC) No 1272/2008 [CLP] and amendments</b>	<b>Classification Procedure</b>
Acute Toxicity (Dermal) Category 3, H311	Expert judgement
Specific Target Organ Toxicity - Repeated Exposure Category 2, H373	Calculation method
Hazardous to the Aquatic Environment Acute Hazard Category 1, H400	Calculation method
Acute Toxicity (Inhalation) Category 3, H331	Expert judgement
Hazardous to the Aquatic Environment Long-Term Hazard Category 1, H410	Expert judgement
Acute Toxicity (Oral) Category 3, H301	Expert judgement