

2-NITROTOLUENE

GHS Safety Data Sheet

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

2-NITROTOLUENE

OTHER NAMES

C7-H7-NO₂, O₂NC₆H₄CH₃, "toluene, o-nitro-",
2-methylnitrobenzene, o-methylnitrobenzene

PROPER SHIPPING NAME

NITROTOLUENES, LIQUID

PRODUCT USE

Production of toluidine, tolidine, fuchsin and various synthetic dyes.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

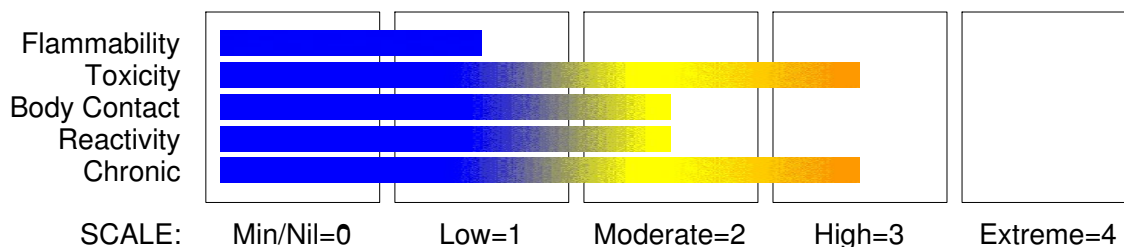
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Dermal) Category 3

Acute Toxicity (Inhalation) Category 2

Acute Toxicity (Oral) Category 3

Carcinogen Category 1B

Chronic Aquatic Hazard Category 2

Organ Damage Category 2

continued...

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Section 2 - HAZARDS IDENTIFICATION

Reproductive Toxicity Category 2
Respiratory Irritation Category 3



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H335 H330 H311 H301 H350 H361 H373 H411

May cause respiratory irritation

Fatal if inhaled

Toxic in contact with skin

Toxic if swallowed

May cause CANCER

Suspected of damaging fertility

May cause damage to organs through prolonged or repeated exposure.

Toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS

Prevention

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear respiratory protection.

Use only outdoors or in a well ventilated area.

Wear protective gloves/clothing

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use personal protective equipment as required.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Response

Immediately call a POISON CENTER or doctor/physician.

If exposed or concerned: Get medical attention advice.

Keep container tightly closed.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Get medical advice/attention if you feel unwell.

Call a POISON CENTER or doctor/physician if you feel unwell.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Specific treatment: refer to Label or MSDS.

IF ON SKIN: Gently wash with plenty of soap and water.

Remove/Take off immediately all contaminated clothing

Wash/Decontaminate removed clothing before reuse.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

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Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
o- nitrotoluene	88-72-2	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
 - For advice, contact a Poisons Information Centre or a doctor.
 - Urgent hospital treatment is likely to be needed.
 - 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.
 - 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 MSDS should be provided. Further action will be the responsibility of the medical specialist.
 - If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.
 - Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:
 - INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- NOTE: Wear a protective glove when inducing vomiting by mechanical means.

EYE

- If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
 - Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
 - Transport to hospital or doctor without delay.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin or hair contact occurs:
- Quickly but gently, wipe material off skin with a dry, clean cloth.
 - Immediately 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.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prosthesis 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.

NOTES TO PHYSICIAN

Symptoms of vasodilation and reflex tachycardia may present following organic nitrate overdose; most organic nitrates are extensively metabolised by hydrolysis to inorganic

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Section 4 - FIRST AID MEASURES

nitrites. Organic nitrates and nitrites are readily absorbed through the skin, lungs, mucosa and gastro-intestinal tract.

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

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

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

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

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use fire fighting procedures suitable for surrounding area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Combustible.
- Slight fire hazard when exposed to heat or flame.

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Section 5 - FIRE FIGHTING MEASURES

- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Mists containing combustible materials may be explosive.

Combustion products include: carbon dioxide (CO₂), nitrogen oxides (NO_x), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Personal Protective Equipment

Breathing apparatus.

Gas tight chemical resistant suit.

Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

Chemical Class: nitro/ nitroso

For release onto land: recommended sorbents listed in order of priority.

SORBENT TYPE	RANK	APPLICATION	COLLECTION	LIMITATIONS
LAND SPILL - SMALL				
wood fiber - pillow	1	throw	pitchfork	R, P, DGC, RT
sorbent clay - particulate	1	shovel	shovel	R, I, P
foamed glass - pillow	2	throw	pitchfork	R, P, DGC, RT
wood fiber - particulate	3	shovel	shovel	R, W, P, DGC
treated wood fiber - particulate	3	throw	pitchfork	DGC, RT
polypropylene - particulate	4	shovel	shovel	W, SS, DGC
LAND SPILL - MEDIUM				
sorbent clay -	1	blower	skiploader	R, I, P

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Section 6 - ACCIDENTAL RELEASE MEASURES

particulate polypropylene -	1	blower	skiploader	W, SS, DGC
particulate expanded mineral -	2	blower	skiploader	R, I, W, P, DGC
particulate wood fiber -	2	blower	skiploader	R, W, P, DGC, RT
particulate polypropylene- mat	2	blower	skiploader	DGC, RT
foamed glass- particulate	3	blower	skiploader	R, P, DGC, RT

Legend

DGC: Not effective where ground cover is dense

R; Not reusable

I: Not incinerable

P: Effectiveness reduced when rainy

RT: Not effective where terrain is rugged

SS: Not for use within environmentally sensitive sites

W: Effectiveness reduced when windy

Reference: Sorbents for Liquid Hazardous Substance Cleanup and Control;

R.W Melvold et al: Pollution Technology Review No. 150: Noyes Data Corporation 1988.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by all means available, spillage from entering drains or water courses.
- Consider evacuation (or protect in place).
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse / absorb vapour.
- Contain or absorb spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

o-nitrotoluene 60 ppm

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

o-nitrotoluene 10 ppm

other than mild, transient adverse effects without perceiving a clearly defined odour is:

o-nitrotoluene 6 ppm

The threshold concentration below which most people will experience no appreciable risk of health effects:

o-nitrotoluene 5 ppm

American Industrial Hygiene Association (AIHA)

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Section 6 - ACCIDENTAL RELEASE MEASURES

Ingredients considered according to the following cutoffs

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
R51	$\geq 2.5\%$		
else	$\geq 10\%$		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately. Launder contaminated clothing before re-use.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

- Glass container.
 - Lined metal can, lined metal pail/ can.
 - Plastic pail.
 - Polyliner drum.
 - Packing as recommended by manufacturer.
 - Check all containers are clearly labelled and free from leaks.
- For low viscosity materials
- Drums and jerricans must be of the non-removable head type.
 - Where a can is to be used as an inner package, the can must have a screwed enclosure.
- For materials with a viscosity of at least 2680 cSt. (23 deg. C) and solids (between 15 C deg. and 40 deg C.):
- Removable head packaging;
 - Cans with friction closures and

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Section 7 - HANDLING AND STORAGE

• low pressure tubes and cartridges may be used.

-

Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages *.

-

In addition, where inner packagings are glass and contain liquids of packing group I and II there must be sufficient inert absorbent to absorb any spillage *.

-

* unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.

STORAGE INCOMPATIBILITY

Nitroaromatic and in particular polynitroaromatic compounds may present a severe explosion risk if subjected to shock or heated rapidly and uncontrollably as in fire situations. In addition, when such compounds are heated more moderately with caustic alkalis, even when water or organic solvents are present, there is also a risk of violent decomposition or explosion. Several industrial accidents, which probably were due to such interactions, have occurred; this potential hazard often remains unacknowledged. A range of exothermic decomposition energies for nitro compounds is given as 220-410 kJ/mol. The relationship between energy of decomposition and processing hazards has been the subject of discussion; it is suggested that values of energy released per unit of mass, rather than on a molar basis (J/g) be used in the assessment. For example, in "open vessel processes" (with man-hole size openings, in an industrial setting), substances with exothermic decomposition energies below 500 J/g are unlikely to present a danger, whilst those in "closed vessel processes" (opening is a safety valve or bursting disk) present some danger where the decomposition energy exceeds 150 J/g. BRETHERICK: Handbook of Reactive Chemical Hazards, 4th Edition.

Avoid reaction with oxidising agents, bases and strong reducing agents.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- o- nitrotoluene: CAS:88- 72- 2 CAS:57158- 05- 1

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
o- nitrotoluene		200 [Unch]

MATERIAL DATA

Exposure limits with "skin" notation indicate that vapour and liquid may be absorbed through intact skin. Absorption by skin may readily exceed vapour inhalation exposure. Symptoms for skin absorption are the same as for inhalation. Contact with eyes and mucous membranes may also contribute to overall exposure and may also invalidate the exposure

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

standard.

The TLV-TWA is thought to be protective against the significant risk of methaemoglobinaemia.

PERSONAL PROTECTION



EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens 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].

HANDS/FEET

Suitability and durability of glove type is dependent on usage. Factors such as:

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

are important in the selection of gloves.

Wear chemical protective gloves, eg. PVC.

Wear safety footwear or safety gumboots, eg. Rubber.

OTHER

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

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

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

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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:

solvent, vapours, degreasing etc., evaporating from tank (in still air).

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)

direct spray, spray painting in shallow booths,

drum filling, conveyer loading, crusher dusts,

gas discharge (active generation into zone of rapid air motion)

grinding, abrasive blasting, tumbling, high

speed wheel generated dusts (released at high

initial velocity into zone of very high rapid

air motion).

Air Speed:

0.25- 0.5 m/s (50- 100 f/min.)

0.5- 1 m/s (100- 200 f/min.)

1- 2.5 m/s (200- 500 f/min.)

2.5- 10 m/s (500- 2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range

1: Room air currents minimal or favourable to capture

2: Contaminants of low toxicity or of nuisance value only.

3: Intermittent, low production.

4: Large hood or large air mass in motion

Upper end of the range

1: Disturbing room air currents

2: Contaminants of high toxicity

3: High production, heavy use

4: Small hood- local control only

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

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Yellowish liquid; does not mix with water. Soluble in benzene, alcohol, petroleum ether.

PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Sinks in water.

Toxic or noxious vapours/gas.

Molecular Weight: 137.15

Melting Range (°C): - 4 - - 3

Solubility in water (g/L): Immiscible

Boiling Range (°C): 225

Specific Gravity (water=1): 1.163

pH (as supplied): Not applicable

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

pH (1% solution): Not applicable
Volatile Component (%vol): 100
Relative Vapour Density (air=1): 4.7
Lower Explosive Limit (%): 2.2
Autoignition Temp (°C): 305.00
State: Liquid

Vapour Pressure (kPa): 0.03 @ 25 C
Evaporation Rate: Not available
Flash Point (°C): 106.11
Upper Explosive Limit (%): Not available
Decomposition Temp (°C): Not Available
Viscosity: Not Available

log Kow: 2.3

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

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

Considered an unlikely route of entry in commercial/industrial environments. The liquid may produce gastrointestinal discomfort and may be harmful if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

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).

Symptoms include cyanosis (a bluish discolouration skin and mucous membranes) and breathing difficulties. Symptoms may not be evident until several hours after exposure.

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.

EYE

Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

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Section 11 - TOXICOLOGICAL INFORMATION

SKIN

Skin contact with the material may produce toxic effects; systemic effects may result following absorption.

The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives .

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.

INHALED

Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may produce toxic effects; these may be fatal.

Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination.

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.

CHRONIC HEALTH EFFECTS

Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems.

On the basis, primarily, of animal experiments, the material may be regarded as carcinogenic to humans. There is sufficient evidence to provide a strong presumption that human exposure to the material may result in cancer on the basis of:

- appropriate long-term animal studies
- other relevant information.

There is sufficient evidence to provide a strong presumption that human exposure to the material may result in the development of heritable genetic damage, generally on the basis of

- appropriate animal studies,
- other relevant information.

Suspected of causing anaemia in chronic exposures.

May affect male and female reproductive systems. In a 13-week subchronic feeding study, all isomers of nitrotoluene were associated with impaired testicular function and increased length of oestrus cycle in rats. Mice produced no evidence of reproductive toxicity associated with prolonged dietary exposure.

In a 13-week dietary study, administration of o-nitrotoluene was associated with chemically related tumours in male rats.

TOXICITY AND IRRITATION

TOXICITY

Oral (rat) LD50: 891 mg/kg

Inhalation (rat) LC50: 790 mg/m³

Oral (mouse) LD50: 970 mg/kg

Inhalation (mouse) LC50: 328 mg/m³

Oral (rabbit) LD50: 1750 mg/kg

Fatty liver degeneration, methaemoglobinaemia recorded.

IRRITATION

Nil Reported

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Section 12 - ECOLOGICAL INFORMATION

Algae IC50 (72hr.) (mg/l): 3.1- 28
log Pow (Verschuereen 1983): 2.3

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.

log Kow: 2.3

Koc: 124-425

Half-life (hr) air: 8

Half-life (hr) H2O surface water: 1-75

Henry's atm m³/mol: 5.50E-05

BCF: 16-100

Toxicity invertebrate: LC50(96)0.6-1.3mg/L

Bioaccumulation: some

Effects on algae and plankton: EC50(3) 4.48-8.96mg/L

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.
- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: TOXIC
HAZCHEM: 2X

UNDG:

Dangerous Goods Class: 6.1

UN Number: 1664

Shipping Name: NITROTOLUENES, LIQUID

Subrisk:

Packing Group:

None

II

continued...

2-NITROTOLUENE

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Section 14 - TRANSPORTATION INFORMATION

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	1664	Packing Group:	II
ERG Code:	6L		

Shipping name:NITROTOLUENES, LIQUID

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	1664	Packing Group:	II
EMS Number:	F- A, S- A		

Shipping name:NITROTOLUENES, LIQUID

Section 15 - REGULATORY INFORMATION

REGULATIONS

o-nitrotoluene (CAS: 88-72-2) is found on the following regulatory lists;
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Agency for Research on Cancer (IARC) Carcinogens
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for o-nitrotoluene as CAS: 57158-05-1.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
o- nitrotoluene	88- 72- 2, 57158- 05- 1

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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