

## NONAN-1-OL

GHS SAFETY DATA SHEET

Version No:2.0  
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### Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### PRODUCT NAME

1-NONANOL

#### OTHER NAMES

C<sub>9</sub>-H<sub>20</sub>-O, CH<sub>3</sub>(CH<sub>2</sub>)<sub>7</sub>CH<sub>2</sub>OH, n-nonalol, "n-nonyl alcohol",  
nonan-1-ol, "octyl carbinol", "pelargonic alcohol"

#### PROPER SHIPPING NAME

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

#### PRODUCT USE

Occurs naturally in oil of orange. Used in the manufacture of artificial lemon oil.

NOTE: Literature citation frequently confuses nonanol with the 1-nonanol isomer, whereas in reality any of the nonyl isomers is in fact the subject of review. The confusion also extends to the assignment of two CAS numbers to single product.

#### SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

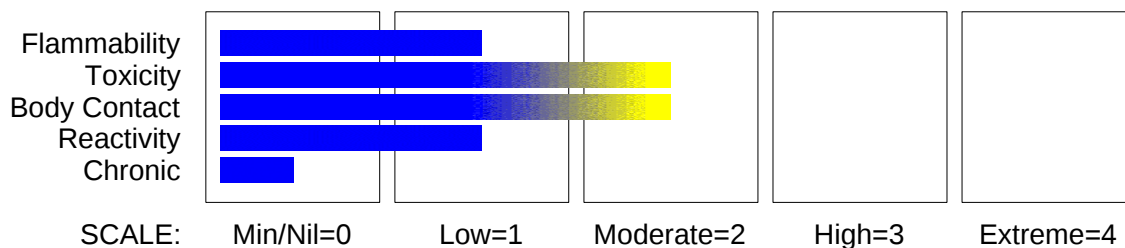
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

#### HAZARD RATINGS



### Section 2 - HAZARDS IDENTIFICATION

#### GHS Classification

Acute Toxicity (Inhalation) Category 3

continued...

# NONAN-1-OL

Acute Toxicity (Oral) Category 5  
Flammable Liquid Category 4  
Respiratory Irritation Category 3  
Skin Corrosion/Irritation Category 3



## EMERGENCY OVERVIEW

### HAZARD

DANGER

Determined by using GHS criteria:

H335 H227 H331 H303 H316

May cause respiratory irritation

Combustible Liquid

Toxic if inhaled

May be harmful if swallowed

Causes mild skin irritation

### PRECAUTIONARY STATEMENTS

#### Prevention

Keep away from flames and hot surfaces.

Use only outdoors or in a well ventilated area.

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

Avoid breathing dust/fume/gas/mist/vapours/spray.

Use explosion-proof electrical/ventilating/lighting/equipment

#### Response

If skin irritation occurs, seek medical advice/attention.

Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Keep container tightly closed.

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

Specific treatment: refer to Label or MSDS.

In case of fire, use dry agent for extinction.

In case of fire, use alcohol-type foam for extinction.

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

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

#### Storage

Store locked up.

Store away from other materials

#### Disposal

Dispose of contents and container in accordance with relevant legislation.

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## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

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| NAME       | CAS RN   | %   |
|------------|----------|-----|
| 1- nonanol | 143-08-8 | >98 |

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## Section 4 - FIRST AID MEASURES

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### SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.

- If swallowed do NOT induce vomiting.
- 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
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

### 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 contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

### INHALED

- 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.

### NOTES TO PHYSICIAN

To treat poisoning by the higher aliphatic alcohols:

- Gastric lavage with copious amounts of water.
- It may be beneficial to instill 60 ml of mineral oil into the stomach.
- Oxygen and artificial respiration as needed.
- Electrolyte balance: it may be useful to start 500 ml. M/6 sodium bicarbonate intravenously but maintain a cautious and conservative attitude toward electrolyte replacement unless shock or severe acidosis threatens.
- To protect the liver, maintain carbohydrate intake by intravenous infusions of glucose.
- Haemodialysis if coma is deep and persistent. [GOSSELIN, SMITH HODGE: Clinical Toxicology of Commercial Products, Ed 5)

## BASIC TREATMENT

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 l/min.
- Monitor and treat, where necessary, for shock.
- Monitor and treat, where necessary, for pulmonary oedema.
- Anticipate and treat, where necessary, for seizures.
- DO NOT use emetics. Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.
- Give activated charcoal.

## ADVANCED TREATMENT

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- If the patient is hypoglycaemic (decreased or loss of consciousness, tachycardia, pallor, dilated pupils, diaphoresis and/or dextrose strip or glucometer readings below 50 mg), give 50% dextrose.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.
- Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.

## EMERGENCY DEPARTMENT

- Laboratory analysis of complete blood count, serum electrolytes, BUN, creatinine, glucose, urinalysis, baseline for serum aminotransferases (ALT and AST), calcium, phosphorus and magnesium, may assist in establishing a treatment regime. Other useful analyses include anion and osmolar gaps, arterial blood gases (ABGs), chest radiographs and electrocardiograph.
- Positive end-expiratory pressure (PEEP)-assisted ventilation may be required for acute parenchymal injury or adult respiratory distress syndrome.
- Acidosis may respond to hyperventilation and bicarbonate therapy.
- Haemodialysis might be considered in patients with severe intoxication.
- Consult a toxicologist as necessary. BRONSTEIN, A.C. and CURRANCE, P.L. EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994.

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## Section 5 - FIRE FIGHTING MEASURES

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### EXTINGUISHING MEDIA

- Alcohol stable 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 breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- 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.

## **FIRE/EXPLOSION HAZARD**

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

## **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.

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## **Section 6 - ACCIDENTAL RELEASE MEASURES**

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## **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**

Moderate hazard.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

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## 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.**

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## Section 7 - HANDLING AND STORAGE

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### 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.
- Avoid smoking, naked lights or ignition sources.
- 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.
- 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.

### SUITABLE CONTAINER

- Glass container.
- Plastic container.
- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

### STORAGE INCOMPATIBILITY

Avoid storage with oxidisers, acids and acid chlorides, strong bases.

### STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- 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

- 1- nonanol: CAS:143- 08- 8 CAS:28473- 21- 4

### MATERIAL DATA

No exposure limits set by NOHSC or ACGIH.

### PERSONAL PROTECTION



#### EYE

- Safety glasses with side shields; or as required,
- 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

- Neoprene gloves.
- Nitrile gloves.
- PVC gloves.
- Safety footwear.

#### OTHER

- Overalls.
- Barrier cream
- Eyewash unit.

#### RESPIRATOR

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.

| Breathing Zone Level<br>ppm (volume) | Maximum Protection<br>Factor | Half- face Respirator | Full- Face Respirator |
|--------------------------------------|------------------------------|-----------------------|-----------------------|
| 1000                                 | 10                           | A- AUS P              | -                     |
| 1000                                 | 50                           | -                     | A- AUS P              |
| 5000                                 | 50                           | Airline *             | -                     |
| 5000                                 | 100                          | -                     | A- 2 P                |

continued...

|       |             |   |                     |
|-------|-------------|---|---------------------|
| 10000 | 100<br>100+ | - | A- 3 P<br>Airline** |
|-------|-------------|---|---------------------|

\* - Continuous Flow

\*\* - Continuous-flow or positive pressure demand.

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

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

|                                                                                                                                                                                                                     |                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Type of Contaminant:                                                                                                                                                                                                | Air Speed:                     |
| solvent, vapours, degreasing etc., evaporating from tank (in still air).                                                                                                                                            | 0.25- 0.5 m/s (50- 100 f/min)  |
| aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5- 1 m/s (100- 200 f/min.)   |
| direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)                                                      | 1- 2.5 m/s (200- 500 f/min.)   |
| grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).                                                                | 2.5- 10 m/s (500- 2000 f/min.) |

Within each range the appropriate value depends on:

|                                                            |                                   |
|------------------------------------------------------------|-----------------------------------|
| Lower end of the range                                     | Upper end of the range            |
| 1: Room air currents minimal or favourable to capture      | 1: Disturbing room air currents   |
| 2: Contaminants of low toxicity or of nuisance value only. | 2: Contaminants of high toxicity  |
| 3: Intermittent, low production.                           | 3: High production, heavy use     |
| 4: Large hood or large air mass in motion                  | 4: Small hood- local control only |

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

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## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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### APPEARANCE

Colourless clear oily liquid with penetrating citronella odour; does not mix with water. Mixes with alcohol, chloroform and mineral oil.

### PHYSICAL PROPERTIES

Liquid.

Does not mix with water.

Floats on water.

Molecular Weight: 144.26

Melting Range (°C): - 8 - - 6

Solubility in water (g/L): Immiscible

pH (1% solution): Not applicable

Volatile Component (%vol): Not available.

Relative Vapour Density (air=1): 5.0

Lower Explosive Limit (%): Not available

Autoignition Temp (°C): Not available

State: Liquid

Boiling Range (°C): 215

Specific Gravity (water=1): 0.827

pH (as supplied): Not applicable

Vapour Pressure (kPa): 1.73 @ 104 C

Evaporation Rate: Not available

Flash Point (°C): 75.56

Upper Explosive Limit (%): Not available

Decomposition Temp (°C): Not available

log Kow : 4.02

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## Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

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### CONDITIONS CONTRIBUTING TO INSTABILITY

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

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## Section 11 - TOXICOLOGICAL INFORMATION

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### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

Accidental ingestion of the material may be damaging to the health of the individual. Effects on the nervous system characterise over-exposure to higher aliphatic alcohols. These include headache, muscle weakness, giddiness, ataxia, (loss of muscle coordination), confusion, delirium and coma. Gastrointestinal effects may include nausea, vomiting and diarrhoea. In the absence of effective treatment, respiratory arrest is the most common cause of death in animals acutely poisoned by the higher alcohols. Aspiration of liquid alcohols produces an especially toxic response as they are able to penetrate deeply in the lung where they are absorbed and may produce pulmonary injury. Those possessing lower viscosity elicit a greater response. The result is a high blood level and prompt death at doses otherwise tolerated by ingestion without aspiration. As a general observation, alcohols are more powerful central nervous system depressants than their aliphatic analogues. In sequence of decreasing depressant potential, tertiary alcohols with multiple substituent OH groups are more potent than secondary alcohols, which, in turn, are more potent than primary alcohols. The potential for overall systemic toxicity

continued...

increases with molecular weight, principally because the water solubility is diminished and lipophilicity is increased.

## EYE

Although the material 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).

## SKIN

Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis. 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.

Most liquid alcohols appear to act as primary skin irritants in humans. Significant percutaneous absorption occurs in rabbits but not apparently in man.

The liquid may produce skin discomfort following prolonged contact. Defatting and/or drying of the skin may lead to dermatitis.

## INHALED

Inhalation may produce health damage\*.

Limited evidence exists, or practical experience predicts, that the material produces irritation of the respiratory system in a significant number of individuals following inhalation.

Not normally a hazard due to non-volatile nature of product.

Inhalation of vapour is more likely at higher than normal temperatures.

Inhalation of vapour may aggravate a pre-existing respiratory condition.

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.

## CHRONIC HEALTH EFFECTS

Principal routes of exposure are by accidental skin and eye contact and by inhalation of vapours especially at higher temperatures.

Animals inhaling 0.2 mg/l/2h/day for 2 months, exhibited deformed or degenerate glial elements diffusely scattered in the cerebral cortex and sub-cortex.

No human exposure data available. For this reason health effects described are based on experience with chemically related materials.

As with any chemical product, contact with unprotected bare skin; inhalation of vapour, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

## TOXICITY AND IRRITATION

### TOXICITY

Intraperitoneal (rat) LD50: 800 mg/kg

Oral (mouse) LD50: 6400 mg/kg

Inhalation (mouse) LC50: 5500 mg/m<sup>3</sup>/2h

Intraperitoneal (mouse) LD50: 800 mg/kg

Dermal (rabbit) LD50: 5660 mg/kg

Inhalation (mammal) LC50: 4360 mg/kg

### IRRITATION

Nil Reported

# NONAN-1-OL

## Section 12 - ECOLOGICAL INFORMATION

Marine Pollutant: Not Determined  
Fish LC50 (96hr.) (mg/l): 5.7  
  
log Kow : 4.02  
BCF: 2950  
Bioaccumulation: sig  
Degradation Biological: some  
processes Abiotic: no hydrol&photol,RxnOH\*

## Section 13 - DISPOSAL CONSIDERATIONS

- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14 - TRANSPORTATION INFORMATION



Labels Required: MISCELLANEOUS  
HAZCHEM: 2X

### UNDG:

|                                                                    |      |                |      |
|--------------------------------------------------------------------|------|----------------|------|
| Dangerous Goods Class:                                             | 9    | Subrisk:       | None |
| UN Number:                                                         | 3082 | Packing Group: | III  |
| Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. |      |                |      |

### Air Transport IATA:

|                                                                    |      |                    |      |
|--------------------------------------------------------------------|------|--------------------|------|
| ICAO/IATA Class:                                                   | 9    | ICAO/IATA Subrisk: | None |
| UN/ID Number:                                                      | 3082 | Packing Group:     | III  |
| ERG Code:                                                          | 9L   |                    |      |
| Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. |      |                    |      |

### Maritime Transport IMDG:

|                                                                    |            |                   |                |
|--------------------------------------------------------------------|------------|-------------------|----------------|
| IMDG Class:                                                        | 9          | IMDG Subrisk:     | None           |
| UN Number:                                                         | 3082       | Packing Group:    | III            |
| EMS Number:                                                        | F- A, S- F | Marine Pollutant: | Not Determined |
| Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. |            |                   |                |

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## Section 15 - REGULATORY INFORMATION

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### REGULATIONS

1-nonanol (CAS: 143-08-8) is found on the following regulatory lists;  
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk  
OECD Representative List of High Production Volume (HPV) Chemicals

1-nonanol (CAS: 28473-21-4) is found on the following regulatory lists;  
International Council of Chemical Associations (ICCA) - High Production Volume List  
OECD Representative List of High Production Volume (HPV) Chemicals

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## Section 16 - OTHER INFORMATION

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### Denmark Advisory list for selfclassification of dangerous substances

| Substance  | CAS          | Suggested codes |
|------------|--------------|-----------------|
| 1- nonanol | 143- 08- 8   | N; R51/53       |
| 1- nonanol | 28473- 21- 4 | N; R51/53       |

### INGREDIENTS WITH MULTIPLE CAS NUMBERS

| Ingredient Name | CAS                      |
|-----------------|--------------------------|
| 1- nonanol      | 143- 08- 8, 28473- 21- 4 |

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

Issue Date: 30-Dec-2017