

NONYLPHENOL

GHS Safety Data Sheet

Version No:5.1.1.1
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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

4-NONYLPHENOL

OTHER NAMES

C15-H24-O, "phenol, 4-nonyl-", "phenol para-nonyl-", para-nonylphenol, para-n-nonylphenol, "4-n-nonyl phenol", 4-NP

PROPER SHIPPING NAME

ALKYLPHENOLS, LIQUID, N.O.S. (including C2-C12 homologues)(contains 4-nonylphenol)

PRODUCT USE

■ Intermediate.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V.Ind.Estate,

248, Worli Road,

Mumbai- 400030, India

www.sdfine.com

Telephone: 91- 22 24959898/99

Fax: 91- 22 2493 7232

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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity Category 4

Chronic Aquatic Hazard Category 1

Metal Corrosion Category 1

Serious Eye Damage Category 1

Skin Corrosion/Irritation Category 1A



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H410	Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention

Code	Phrase
P234	Keep only in original container.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash ... thoroughly after handling.

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Section 2 - HAZARDS IDENTIFICATION

P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
Response Code	Phrase
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P391	Collect spillage.
Storage Code	Phrase
P405	Store locked up.
P406	Store in corrosive resistant container or with a resistant inner liner.
Disposal Code	Phrase
P501	Dispose of contents/container to ...

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
4- nonylphenol	104-40-5	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

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.

SKIN

- If skin or hair contact occurs:
- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

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.
- Inhalation of vapours or aerosols (mists, fumes) may cause lung oedema.
- Corrosive substances may cause lung damage (e.g. lung oedema, fluid in the lungs).
- As this reaction may be delayed up to 24 hours after exposure, affected individuals need complete rest (preferably in semi-

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- recumbent posture) and must be kept under medical observation even if no symptoms are (yet) manifested.
- Before any such manifestation, the administration of a spray containing a dexamethasone derivative or beclomethasone derivative may be considered.

NOTES TO PHYSICIAN

- For acute or short term repeated exposures to phenols/ cresols:
 - Phenol is absorbed rapidly through lungs and skin. [Massive skin contact may result in collapse and death]*
 - [Ingestion may result in ulceration of upper respiratory tract; perforation of oesophagus and/or stomach, with attendant complications, may occur. Oesophageal stricture may occur.]*
 - An initial excitatory phase may present. Convulsions may appear as long as 18 hours after ingestion. Hypotension and ventricular tachycardia that require vasopressor and antiarrhythmic therapy, respectively, can occur.
 - Respiratory arrest, ventricular dysrhythmias, seizures and metabolic acidosis may complicate severe phenol exposures so the initial attention should be directed towards stabilisation of breathing and circulation with ventilation, intubation, intravenous lines, fluids and cardiac monitoring as indicated.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

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.

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).

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

May emit corrosive fumes.

FIRE INCOMPATIBILITY

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

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.
- Check regularly for spills and leaks.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.

SUITABLE CONTAINER

- Glass container is suitable for laboratory quantities.
- DO NOT use aluminium or galvanised containers.
- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.

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. <</>.

STORAGE INCOMPATIBILITY

- Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air.
- Phenols are incompatible with strong reducing substances such as hydrides, nitrides, alkali metals, and sulfides.
- Avoid use of aluminium, copper and brass alloys in storage and process equipment.
- Heat is generated by the acid-base reaction between phenols and bases.
- Phenols are sulfonated very readily (for example, by concentrated sulfuric acid at room temperature), these reactions generate heat.
- Avoid reaction with oxidising 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.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- 4- nonylphenol:

CAS:104- 40- 5

MATERIAL DATA

4-NONYLPHENOL:

■ Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations.

PERSONAL PROTECTION



RESPIRATOR

- Type AB-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities, where there is a danger of splashing, or if the material may be under pressure
- Chemical goggles whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted
- Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of eyes; these afford face protection.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- Alternatively a gas mask may replace splash goggles and face shields.

HANDS/FEET

- Elbow length PVC gloves.

- When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

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

OTHER

- Overalls.
- PVC Apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.

ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless to yellow clear viscous liquid;. does not mix well with water. Soluble in benzene, chlorinated solvents, aniline, heptane, aliphatic alcohols, ethylene glycol.

PHYSICAL PROPERTIES

Does not mix with water.

Floats on water.

Corrosive.

State	LIQUID	Molecular Weight	220.39
Melting Range (°C)	- 10 - 2	Viscosity	Not Available
Boiling Range (°C)	293- 297	Solubility in water (g/L)	Immiscible
Flash Point (°C)	141	pH (1% solution)	Not applicable
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°C)	Not available	Vapour Pressure (kPa)	Not available
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	0.950
Lower Explosive Limit (%)	Not available	Relative Vapour Density (air=1)	7.6
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

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

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

Health hazard summary table:

Acute toxicity

Skin corrosion/irritation

Acute Tox. (oral) 4

Skin Corr. 1 A

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Section 11 - TOXICOLOGICAL INFORMATION

Serious eye damage/irritation	Eye Dam. 1
Respiratory or skin sensitization	Not applicable
Germ cell mutagenicity	Not applicable
Carcinogenicity	Not applicable
Reproductive toxicity	Not applicable
STOT- single exposure	Not applicable
STOT- repeated exposure	Not applicable
Aspiration hazard	Not applicable

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- 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.
 - The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.
 - Some phenol derivatives can cause damage to the digestive system.
- If absorbed, profuse sweating, thirst, nausea, vomiting, diarrhoea, cyanosis, restlessness, stupor, low blood pressure, gasping, abdominal pain, anaemia, convulsions, coma and lung swelling can happen followed by pneumonia.

EYE

- The material can produce severe chemical burns to the eye following direct contact.
- Vapours or mists may be extremely irritating.
- If applied to the eyes, this material causes severe eye damage.
 - Some phenol derivatives may produce mild to severe eye irritation with redness, pain and blurred vision.
- Permanent eye injury may occur; recovery may also be complete or partial.

SKIN

- The material can produce severe chemical burns following direct contact with the skin.
 - Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
 - Phenol and its derivatives can cause severe skin irritation if contact is maintained, and can be absorbed to the skin affecting the cardiovascular and central nervous system.
- Effects include sweating, intense thirst, nausea and vomiting, diarrhoea, cyanosis, restlessness, stupor, low blood pressure, hyperventilation, abdominal pain, anaemia, convulsions, coma, lung swelling followed by pneumonia.
- 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.

INHALED

- The material can cause respiratory irritation in some persons.
- The body's response to such irritation can cause further lung damage.
- Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary oedema.
 - If phenols are absorbed via the lungs, systemic effects may occur affecting the cardiovascular and nervous systems.
- Inhalation can result in profuse perspiration, intense thirst, nausea, vomiting, diarrhoea, cyanosis, restlessness, stupor, falling blood pressure, hyperventilation, abdominal pain, anaemia, convulsions, coma, swelling and inflammation of the lung.
- Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

CHRONIC HEALTH EFFECTS

- Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
- Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
- Based on experience with similar materials, there is a possibility that exposure to the material may reduce fertility in humans at levels which do not cause other toxic effects.
- Long-term exposure to phenol derivatives can cause skin inflammation, loss of appetite and weight, weakness, muscle aches and pain, liver damage, dark urine, loss of nails, skin eruptions, diarrhoea, nervous disorders with headache, salivation, fainting, discolouration of the skin and eyes, vertigo and mental disorders, and damage to the liver and kidneys.
- Exposure to alkyl phenolics is associated with reduced sperm count and fertility in males.
- Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining.
- Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs. Chronic exposure may inflame the skin or conjunctiva.

TOXICITY AND IRRITATION

- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.
- The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
- The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

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Section 11 - TOXICOLOGICAL INFORMATION

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

This material and its container must be disposed of as hazardous waste.

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
4- nonylphenol	HIGH	No Data Available	LOW	LOW

Section 13 - DISPOSAL CONSIDERATIONS

- 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.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction.

- DO NOT allow wash water from cleaning or process equipment to enter drains.

- It may be necessary to collect all wash water for treatment before disposal.

- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.

- Where in doubt contact the responsible authority.

- Recycle wherever possible.

- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.

- Treat and neutralise at an approved treatment plant. Treatment should involve: Neutralisation followed by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus

- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: CORROSIVE

HAZCHEM:

2X

Land Transport UNDG:

Class or division:	8	Subsidiary risk:	None
UN No.:	3145	UN packing group:	II

Shipping Name:ALKYLPHENOLS, LIQUID, N.O.S. (including C2-C12 homologues) (including C2-C12 homologues)(contains 4-nonylphenol)

Air Transport IATA:

ICAO/IATA Class:	8	ICAO/IATA Subrisk:	None
UN/ID Number:	3145	Packing Group:	II

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Section 14 - TRANSPORTATION INFORMATION

Special provisions: A3A803

Shipping name:ALKYLPHENOLS, LIQUID, N.O.S. (including C2-C12 homologues)(contains 4-nonylphenol)

Maritime Transport IMDG:

IMDG Class:	8	IMDG Subrisk:	None
UN Number:	3145	Packing Group:	II
EMS Number:	F- A, S- B	Special provisions:	None
Limited Quantities:	1 L	Marine Pollutant:	Yes

Shipping name:ALKYLPHENOLS, LIQUID, N.O.S. (including C2-C12 homologues)(contains 4-nonylphenol)

Section 15 - REGULATORY INFORMATION

REGULATIONS

4-nonylphenol (CAS: 104-40-5) is found on the following regulatory lists;

"FisherTransport Information", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "International Chemical Secretariat (ChemSec) SIN List (*Substitute It Now!)", "International Maritime Dangerous Goods Requirements (IMDG Code) - Marine Pollutants", "OSPAR List of Substances of Possible Concern", "Sigma-AldrichTransport Information", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments"

Section 16 - OTHER INFORMATION

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
4- nonylphenol	104- 40- 5	R43

- Classification of the preparation and its individual components has drawn on official and authoritative sources using available literature references.

- The (M)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.

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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