

1. General Statements

2,3,4 Tri Fluoro Nitro Benzene is a yellow liquid or crystalline solid and is moderately volatile. It is soluble in organic solvents but only slightly soluble in water. Its key uses include serving as a building block in pharmaceutical, agrochemical, and dye manufacturing. Due to its reactive nitro and fluorine groups, it is valuable for further functionalization in chemical synthesis.

2. Chemical identification.

Name : 2,3,4 Tri Fluoro Nitro Benzene
 CAS number(s) : 771-69-7
 EC number : 212-238-4
 Molecular formula : C₆H₂F₃NO₂
 Structure :



3. Uses and Benefits

2,3,4-Trifluoronitrobenzene is a valuable chemical intermediate known for its reactivity, versatility, and contribution to stability in final products. It plays a critical role in pharmaceuticals, agrochemicals, advanced materials, and dyes, making it an important compound in both research and industrial-scale chemical synthesis.

4. Physical / chemical properties

Property	Value
Physical state :	Liquid
Colour :	Pale yellow or light brown oily liquid.
Odour :	Odourless
pH :	NA
Melting point :	NA
Boiling point :	216 – 218.7 °C
Flash point :	93 °C

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Density :	1.541 g/mL
Solubility in Water:	Immiscible

5. Health Effects

Effect Assessment	Result
Acute toxicity (Oral / inhalation / dermal)	Harmful if swallowed, in contact with skin or if inhaled
Irritation / corrosion Skin / eye/ respiratory tract	Causes skin irritation,May cause an allergic skin reaction,Causes serious eye irritation,May cause respiratory irritation
Respiratory or skin sensitisation	Toxic in contact with skin
Toxicity after repeated exposure Oral / inhalation / dermal	It causes damage to organs through prolonged or repeated exposure
Genotoxicity / Mutagenicity	NA
Carcinogenicity	NA
Toxicity for reproduction	NA

6. Environmental Effects

Effect Assessment	Result
Aquatic toxicity	No
Fate and behavior	Result
Persistence and degradability	Not rapidly degradable
Bioaccumulative potential	No additional information available

7. Exposure

Human health

2,3,4-Trifluoronitrobenzene is harmful if swallowed, inhaled, or absorbed through the skin. It poses several health hazards, including: Toxicity on skin contact, Causes skin irritation, It May trigger allergic skin reactions, it Causes serious eye irritation , It May cause respiratory tract irritation , It may Potential to cause organ damage with prolonged or repeated exposure. The exposure must be kept as minimum as possible by the use of appropriate risk management measures suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers. Careless handling or accidental spillage of the chemical could result in exposure to potential hazardous levels of chemicals. Industrial workers should ensure that they follow the advice found in the extended safety data sheet (SDS).

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Environment:

Care should be taken to avoid releases of these products to sewage, drainage systems and water bodies. Spillage shall be quickly collected in the event of an accidental release. More information about release measures and accidental release measures are available in the extended safety data sheet.

8. Risk Management Recommendations

Human health measures.

Organizational	A basic standard of occupational hygiene is recommended. Ensure operatives are well informed of the hazards and trained to minimise exposures. Ensure regular inspection and maintenance of equipment and machines. Handle and store according to the indications of the Safety Data Sheet.	
Protection	Eye protection:	Safety glasses
	Skin and body protection:	Wear suitable protective clothing
	Respiratory protection:	[In case of inadequate ventilation] wear respiratory protection.
Engineering controls	Ensure good ventilation of the work station.	
Environment protective measures		
Avoid release to the environment		

9. First-aid measures

First-aid measures after inhalation : Remove the person to fresh air and keep them comfortable for breathing. Call a poison center or a doctor if you feel unwell.

First-aid measures after skin contact : Wash skin with plenty of water. Remove/Take off immediately all contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Call a poison center or a doctor if you feel unwell.

Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Do not use a heavy water stream.

Special hazards arising from the substance or mixture

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Hazardous decomposition products in case of fire : Toxic fumes may be released.

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter a fire area without proper protective equipment, including respiratory protection.

11. Accidental release measures

Protective equipment : Protective gloves. Wear recommended personal protective equipment.

Environmental precautions : Avoid release to the environment.

For containment : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leaks without risks if possible.

12. Disposal consideration

Regional legislation (waste) : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations : Disposal must be done according to official regulations.

13. Handling and storage

Precautions for safe handling : Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Use only outdoors or in a well-ventilated area.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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14. Classification and Labeling

Hazard pictograms (GHS US)	:	
Signal word (GHS US)	:	Danger
Hazard statements (GHS US)	:	H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled H311 - Toxic in contact with skin H315 - Causes skin irritation H317 - May cause an allergic skin reaction H319 - Causes serious eye irritation H335 - May cause respiratory irritation H373 - May cause damage to organs through prolonged or repeated exposure
Precautionary statements (GHS US)	:	P260 - Do not breathe dust, fume, gas, mist, vapors, spray. P264 - Wash hands, forearms and face thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. P271 - Use only outdoors or in a well-ventilated area. P272 - Contaminated work clothing must not be allowed out of the workplace. P280 - Wear protective gloves. P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell. P302+P352 - If on skin: Wash with plenty of water. P304+P340 - If inhaled: Remove person to fresh air and keep 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. P312 - Call a poison center or doctor if you feel unwell. P314 - Get medical advice or attention if you feel unwell. P321 - Specific treatment (see supplemental first aid instruction on this label). P330 - Rinse mouth. P333+P313 - If skin irritation or rash occurs: Get medical advice or attention. P337+P313 - If eye irritation persists: Get medical advice or attention. P361+P364 - Take off immediately all contaminated clothing and wash it before reuse. P362+P364 - Take off contaminated clothing and wash it before reuse. P403+P233 - Store in a well-ventilated place. Keep container tightly closed. P405 - Store locked up. P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

15. Conclusion

2,3,4-Trifluoronitrobenzene is a yellowish liquid or crystalline solid with moderate volatility and low water solubility. It is an important chemical intermediate widely used in the pharmaceutical, agrochemical, and dye industries due to its highly reactive nitro and fluorine groups, which allow for versatile chemical modifications and functionalizations. From a safety perspective, 2,3,4-trifluoronitrobenzene poses significant health risks. It is toxic upon skin contact, ingestion, or inhalation, causes skin and eye irritation, may trigger allergic skin reactions, and can cause respiratory irritation. Repeated or prolonged exposure may lead to organ damage. Strict safety protocols, including use of personal protective equipment (PPE), good ventilation, and proper hygiene practices, must be observed to minimize risk. Environmentally, the compound is not rapidly degradable, so accidental releases should be prevented or contained to avoid contamination of water and soil.

16. Contact Information within company

Manufacturer

Aarti Industries Limited

Udyog Kshetra, 2nd Floor, Mulund Goregaon Link Road, Mulund (West)

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This GPS safety summary is intended to give general information about the health, safety and environment and not intended to provide in-depth details. To obtain the most accurate and current information, consult the appropriate Safety Data Sheet (SDS) prior to use of the material named herein.