



MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1: Identification

1.1 Product identifiers

Product Name : 2,4-Difluoronitrobenzene
Cat No.: AC214480000; AC214480050; AC214480250; AC214481000
CAS No. : 446-35-5

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

Recommended uses : Laboratory chemicals
Uses advised against: Food, drug, pesticide or biocidal product use.

1.3 Details of the supplier of the safety data sheet

Company : Krishna Solvechem Limited.
B/503, Sahayog, S. V. Road,
Kandivali (West), Mumbai – 400067. India.
Telephone : +91-22-6123 0222
Email : exports@kscl.co.in

1.4 Emergency telephone number

Emergency Phone : +91-8657457330

SECTION 2: Hazards identification

2.1 Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|--|--------------|
| Flammable liquids | (Category 4) |
| Acute oral dermal toxicity | (Category 3) |
| Skin Corrosion/Irritation | (Category 2) |
| Serious Eye Damage/Eye Irritation | (Category 2) |
| Specific target organ toxicity (single exposure) | (Category 3) |
| Target Organs - Respiratory system. | |

2.2 Label elements

Pictogram :



Signal word

Danger

Hazard statement (s)

Toxic if swallowed, in contact with skin or if inhaled



Precautionary statement (s)

Causes skin irritation
Causes serious eye irritation
Combustible liquid
May cause respiratory irritation

Prevention

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep cool

Inhalation :

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Call a POISON CENTER or doctor/physician if you feel unwell

IF ON SKIN (or hair):

If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse

Eyes:

IF IN EYES: 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

Ingestion:

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

Fire

In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage:

Store locked up Store in a well-ventilated place.
Keep container tightly closed



| | |
|--|---|
| | Disposal: Dispose of contents/container to an approved waste disposal plant |
| Hazards not otherwise classified (HNOC) | None identified |

SECTION 3: Composition / information on ingredients

3.1

| Component | CAS-No | Weight % |
|--------------------------------|----------|----------|
| Benzene, 2,4-difluoro-1-nitro- | 446-35-5 | 99 |

SECTION 4: First aid measures

4.1 Description of first aid measures

| | |
|--|---|
| If inhalation : | Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. |
| In case of skin contact : | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. |
| In case of eye contact : | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention. |
| Ingestion : | Clean mouth with water and drink afterwards plenty of water. |
| 4.2 Most important symptoms and effects : | Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting |
| 4.3 Notes to Physician : | Treat symptomatically |

SECTION 5: Firefigh effects

5.1 Extinguishing media

| | |
|--|---|
| Suitable extinguishing media : | Water spray, carbon dioxide (CO ₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers. |
| Unsuitable Extinguishing Media: : | No information available |
| 5.2 Flash Point : | 90 °C / 194 °F |
| Method : | No information available |



| | |
|---|---|
| Autoignition Temperature: | No information available |
| Explosion Limits: | |
| Upper | No data available |
| Lower | No data available |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |
| Specific Hazards Arising from the Chemical : | Combustible material. Flammable. Containers may explode when heated. |
| Hazardous Combustion Products : | Carbon monoxide (CO). Carbon dioxide (CO ₂). Hydrogen halides |

| | | | | |
|---|--|---------------------|--------------------|-------------------------|
| 5.4 Protective Equipment and Precautions for Firefighters: | As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. | | | |
| <u>NFPA:</u> | Health | Flammability | Instability | Physical hazards |
| | 3 | 2 | 0 | N/A |

SECTION 6: Accidental release measures

| | |
|--|--|
| 6.1 Personal precautions, protective equipment and emergency procedures | Remove all sources of ignition. Take precautionary measures against static discharges |
| 6.2 Environmental precautions | See section 12 for additional Ecological Information |
| 6.3 Methods and materials for containment and cleaning up | Keep in suitable, closed containers for disposal. Soak up with inert absorbent material(e.g. sand, silica gel, acid binder, universal binder, sawdust). |

SECTION 7: Handling and storage

| | |
|--|---|
| 7.1 Precautions for safe handling | Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Handle product only in closed system or provide appropriate exhaust ventilation. Keep away from open flames, hot surfaces and sources of ignition. |
|--|---|



7.2 Conditions for safe storage

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks and flame. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong oxidizing agents. Strong bases.

SECTION 8: Exposure controls/personal protection

8.1 Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

8.2 Exposure controls

Personal protective equipment -

Eye / Face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin protection and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice..

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|-----------------------------------|---------------------------------|
| a) Appearance | Dark yellow Liquid |
| b) Odour | Aromatic |
| c) Odour Threshold | No information available |
| d) pH | No information available |
| e) Melting point / freezing point | 9 - 10 °C / 48.2 - 50 °F |
| f) Initial boiling point and | 203 - 204 °C / 397.4 - 399.2 °F |



| | |
|--|--|
| boiling range | |
| g) Flash point | 90 °C / 194 °F |
| h) Evaporation rate | No information available |
| i) Flammability (solid, gas) | Not applicable |
| j) Upper/lower flammability or explosive limits | No data available No data available |
| k) Vapour pressure | No information available |
| l) Vapour density | 5.49 |
| m) Specific Gravity | 1.450 |
| n) Solubility | No information available |
| o) Partition coefficient: n octanol/water | No data available |
| p) Auto-ignition temperature | No information available |
| q) Decomposition temperature | No information available |
| r) Viscosity | No information available |
| s) Molecular formula | C6 H3 F2 N O2 |
| t) Molecular Weight | 159.09 |

SECTION 10: Stability and Reactivity

| | |
|--|---|
| 10.1 Reactive Hazard : | None known, based on information available |
| 10.2 Chemical stability : | Stable under normal conditions. |
| 10.3 Possibility of hazardous reactions : | None under normal processing. |
| 10.4 Conditions to avoid : | Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. |
| 10.5 Incompatible materials: | Strong oxidizing agents, Strong bases |
| 10.6 Hazardous decomposition products : | Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2), Gaseous hydrogen fluoride (HF) |
| 10.7 Hazardous Polymerization | No information available |



SECTION 11: Toxicological information

11.1

Information on toxicological effects

Acute toxicity:

Product Information:

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|--------------------------------|--------------------------|-------------|-----------------|
| Benzene, 2,4-difluoro-1-nitro- | LD50 = 200 mg/kg (Rat) | Not listed | Not listed |

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation : No information available

Sensitization: No information available

Carcinogenicity : The table below indicates whether each agency has Any ingredient as a carcinogen.

| Component | CAS-No | IARC | NTP | ACGIH | OSHA | Mexico |
|--------------------------------|----------|------------|------------|------------|------------|------------|
| Benzene, 2,4-difluoro-1-nitro- | 446-35-5 | Not listed | Not listed | Not listed | Not listed | Not listed |

Mutagenic Effects: No information available.

Reproductive Effects: No information available.

Developmental Effects : No information available.

Teratogenicity: No information available.

STOT - single exposure : Respiratory system

STOT - repeated exposure: None known

Aspiration hazard : No information available.

Symptoms / effects, both acute and delayed: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information : No information available

Other Adverse Effects : The toxicological properties have not been fully investigated.



SECTION 12: Ecological information

| | |
|--|---------------------------|
| 12.1 Ecotoxicity: | Do not empty into drains. |
| 12.2 Persistence and degradability: | No information available |
| Bioaccumulation/ Accumulation | No information available |
| 12.3 Mobility: | No information available |

SECTION 13: Disposal considerations

13.1 Waste treatment methods: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: Transport information

| | | | | |
|--|--|----------|-----------|-----------|
| 14.1 UN number : | DOT : UN2810 TDG : UN2810 IATA : UN2810 IMDG : UN2810 | | | |
| 14.2 UN proper shipping name | | | | |
| DOT : | TOXIC LIQUIDS, ORGANIC, N. O. S. | | | |
| TDG : | Toxic liquid, organic, n. o. s. | | | |
| IMDG : | Toxic liquid, organic, n. o. s. | | | |
| IATA : | Toxic liquid, organic, n. o. s. | | | |
| 14.3 Transport hazard class(es) | DOT: 6.1 | TDG: 6.1 | IMDG: 6.1 | IATA: 6.1 |
| 14.4 Packaging group: | DOT: III | TDG: III | IMDG: III | IATA: III |

SECTION 15: Regulatory information

15.1 United states of America Inventory:

| Component | CAS-No | TSCA | TSCA Inventory notification Active/Inactive | TSCA - EPA Regulatory Flags |
|--------------------------------|----------|------|--|--------------------------------|
| Benzene, 2,4-difluoro-1-nitro- | 446-35-5 | X | ACTIVE | - |

Legend:



TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories:

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia(AICS), China (IECSC), Korea (ECL).

| Component | CAS-No | DSL | NDSL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|--------------------------------|----------|-----|------|-----------|-------|------|------|------|-------|------|
| Benzene, 2,4-difluoro-1-nitro- | 446-35-5 | - | X | 207-167-0 | - | X | X | - | X | - |

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

15.2 U.S. State Right-to-Know Regulations:

Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ): N

DOT Marine Pollutant N

DOT Severe Marine Pollutant N



U.S. Department of Homeland Security - This product does not contain the any DHS Chemicals.

Other International Regulations

Mexico – Grade No information available

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

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|--------------------------------|----------|----------------|------------------------------|---------------------------|--|
| Benzene, 2,4-difluoro-1-nitro- | 446-35-5 | Not applicable | Not applicable | Not applicable | Not applicable |

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|--------------------------------|----------|---|--|----------------------------|------------------------------------|
| Benzene, 2,4-difluoro-1-nitro- | 446-35-5 | Not applicable | Not applicable | Not applicable | Not applicable |

SECTION 16: Other information

16.1 Prepared By: Regulatory affairs
 Krishna Solvechem Limited
Email: exports@kscl.co.in
Revision Date: 24-Dec-2022
Print Date: 24-Dec-2022
Revision Summary: This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 C F R 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

16.2 Disclaimer:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.