



1 Identification
Product identifier
Product name: <u>3,5-Difluorobenzenesulfonyl chloride</u> Stock number: L19507
CAS Number:
210532-25-5 Relevant identified uses of the substance or mixture and uses advised against. Identified use: SU24 Scientific research and development
Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Thermo Fisher Scientific Chemicals, Inc. 30 Bond Street Ward Hill, MA 01835-8099 Tel: 800-343-0660
Ward Hill, MA 01835-8099
Fax: 800-322-4757
Email: tech@alfa.com www.alfa.com
Information Department: Health, Safety and Environmental Department Emergency telephone number:
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.
2 Hazard(s) identification
Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)
GHS05 Corrosion
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage. Hazards not otherwise classified No information known.
Label elements GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
Hazard pictograms
GHS05
Signal word Danger Hazard statements
H314 Causes severe skin burns and eye damage.  Precautionary statements
P260 Do not breathe dust/tume/gas/mist/vapours/spray. P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P260 Do not breathe dust/fume/gas/mist/vapours/spray. P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P405 Store locked up. P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
WHMIS classification D2B Toxic material causing other toxic effects
E - Corrosive material
Chassification system
Classification system HMIS ratings (scale 0-4) (Honordoux Meterical Identification System)
(Hazardouš Materials Identification System)
FRE     I       Flammability = 1       REACTIVITY I       Physical Házard = 1
Other hazards
Results of PBT and vPvB assessment PBT: Not applicable.
vPvB: Not applicable.
3 Composition/information on ingredients
Chemical characterization: Substances CAS# Description:
210532-25-5 3,5-Difluorobenzenesulfonyl chloride
4 First-aid measures
Description of first aid measures General information Immediately remove any clothing soiled by the product.
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice. After skin contact
After skin contact Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice. After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.
After śwallowing Seek medical treatment. (Contd. on page
USA

# Product name: 3,5-Difluorobenzenesulfonyl chloride

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(Contd. of page 1)

Information for doctor Most important symptoms and effects, both acute and delayed Causes severe skin burns. Causes serious eve damage Indication of any immediate medical attention and special treatment needed No further relevant information available.

### 5 Fire-fighting measures

Extinguishing media Suitable extinguishing agents CO2, sand, extinguishing powder. Do not use water. Special hazards arising from the substance or mixture If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide Hydrogen chloride (HCI) Sulfur oxides (SOx) Hydrogen fluoride (HF) Advice for firefighters Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

### 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation Environmental precautions: Do not allow material to be released to the environment without proper governmental permits. Methods and material for containment and cleaning up: Use neutralizing agent. Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation. **Revention of secondary hazards:** No special measures required. **Reference to other sections** See Section 7 for information on safe handling See Section 8 for information on personal protection equipment. See Section 13 for disposal information. 7 Handling and storage Handling Precautions for safe handling

Handle under dry protective gas. Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace. Information about protection against explosions and fires: No information known.

Conditions for safe storage, including any incompatibilities

Storage Requirements to be met by storerooms and receptacles: No special requirements. Information about storage in one common storage facility: Store away from oxidizing agents. Store away from strong bases. Store away from water/moisture. Further information about storage conditions: Store under dry inert gas. This product is moisture sensitive. Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Protect from humidity and water. Specific end use(s) No further relevant information available.

#### 8 Exposure controls/personal protection

Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters Components with limit values that require monitoring at the workplace: Not required. Additional information: No data

# Exposure controls

Personal protective equipment General protective and hygienic measures The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin. Maintain an ergonomically appropriate working environment. Breathing equipment: Use suitable respirator when high concentrations are present. Protection of hands: Impervious gloves Check protective gloves prior to each use for their proper condition. The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer. Penetration time of glove material (in minutes) Not determined Eye protection: Tightly sealed goggles Full face protection Body protection: Protective work clothing

(Contd. of page 2)

Information on toxicological effects Acute toxicity: Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach. LDL C50 values that are relevant for classification: No data Shin Irritation or corrosion: Causes series skin Durss. Eye Irritation or corrosion: Causes series skin Durss. Eye Irritation or corrosion: Causes series skin Durss. Carcinogenicity: No effects known. Carcinogenicity: No effects known. Carcinogenicity: No effects known. Carcinogenicity: No effects known. Specific target organ system toxicity - speated exposure: No effects known. Specific target organ system toxicity - speated exposure: No effects known. Appriation hazer's the effects known. Appriation hazer's the offects known. Appriation toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  2 Ecological information Toxicity Aquatic toxicity: No further relevant information available. Bioaccumulative potential No further relevant information available. Bi			(Contd. of page 2)		
General Information         Solid           Correlation         Solid           Over         Was determined           Over         Not determined           Over         Solid           Over         Not determined           Over         Solid           Over         Not determined           Solid         Not determined           Solid         Not determined           Over         Not determined           Upper         Not determined	9 Physical and chemical properties				
Controls         Selection           Other Investorie         And determined           Other Investorie         Not determined	General Information	emical properties			
Color:         Write Write member (Mark Contention)           Deformation Median point/Netling range:         Not applicable.           Change in confidion Median point/Netling range:         Stable (C) (Sec 39 * F) Median point/Netling range:           Part And Stable Sta	Appearance: Form:	Solid			
Oddor threashold:         Mod applicable.           Phrvalue:         Nod applicable.           Change in condition         FF9 (7,13-18 °F)           Bailing Solitic (in constrained)         > 110 °C, 520 °F, 1           Bailing Solitic (in constrained)         > 110 °C, 520 °F, 1           Data point:         > Vid deemmined           Data point:         > Vid deemmined           Uppor:         > Vid deemmined           Solitility in Mischilly with         > Vid applicable.           Vid applicable.         > Vid applicable.           Solitility in Mischilly vith         > Vid applicable.           Other point:         > Vid applicable.           Solitility in Mischilly vith         > Vid applicable.           Other point:         > Vid applicable.           Solitility in Mischilly vith         > Vid applicable.           Other point on the point po		White			
Change on condition       CF 09 Cf (135-19 VF)         Sublimition temperature's series       Void determined         Part Point:       Sublimition temperature's series         Work openation temperature's series       Void determined         Part Point:       Sublimition temperature's series         Work determined       Void determined         Description temperature:       Work determined         Auto spiniting:       Nord determined         Description temperature:       Work determined         Upper:       Work determined         Upper:       Work determined         Upper:       Work determined         Upper:       Work determined         Void determined       Work applicable         Void determined       Work applicable         Void determined       Work applicable         Void determined </td <th></th> <th></th> <td></td>					
Meding point/Weining range:         Ef. 59 C (155:138 °F)           Sublimition         > 11 °C (-2.30 °F)           Flash point:         > 10 °C (-2.30 °F)           Harmability (solid, gascous)         Mor determined           Auto spining:         Mor determined           Dampe of explosion:         Product does not proceed and a coposion hazard.           Labs spining:         Mor determined           Upper surve:         Mor determined           Wream in Miscipility with         Mor determined           Wream in Miscipility (Solid gascous)         Mor determined	pH-value:	Not applicable.			
Bolling bolt/Boling and Security File Securi					
Familiar information and the second s	Boiling point/Boiling range:	Not determined			
Ignition templerature         Mod determined           Auto ignitive         Mod determined           Parger of explosion:         Product does not present an explosion hazard.           Explosion intris:         Not determined           Lower:         Not determined           Upport pressure:         Not determined           Upport pressure:         Not determined           Upport pressure:         Not deplicable.           Upport description rate         Not deplicable.           Upport description rate         Not deplicable.           Vegor pressure:         Not deplicable.           Upport description rate         Not deplicable.           Vegor description rate         Not deplicable.           Vegor description rate         Not applicable.           Vegor description rate         Not applicable.           Vegor description rate         Not applicable.           Vegor generation rate         Not applicable.           Vegor rate rate ratevegeneration rat					
Auto ignining:         Mod determined           Darger of explosion:         Product does not present an explosion hezard.           Lipper:         Not determined           Upper:         Not determined           Upper:         Not determined           Upper:         Not determined           Upper:         Not determined           Variation:         Not applicable           Variation:         Not applicable           Variation:         Not applicable           Variation:         Not information known.           Condition: to avoid No uniter recommended storage conditions:         Passibility of hazardour reactions No dangerous vactions known.           Condition: to avoid No uniter recommended storage conditions:         Passibility of hazardour reactions No dangerous vactions known.           Condition: to avoid No uniter recommended storage conditions:         Passibility of hazardour recombined in double conditions will not occur il used and stored according to specifications.     <	Ignition temperature:	Not determined			
Danger of epolosion:         Product does not present an explosion hazard.           Explosion infinits:         Mod determined           Explosion infinits:         Mod determined           Vapor fersion:         Mod determined           Papor design:         Mod applicable.           Papor design:         Mod applicable.           Vapor design:         No lumber event information available.           O Stability of hazardous reactions to be avaided: Decomposition vicuality so to available.         No lumber event information available.           There decomposition vicuality so to available.         No lumber event information available.           There decomposition vicuality so to available.         No lumberevent information available. <td< td=""><th></th><th></th><td></td></td<>					
Explosion linits: Net determined ''''''''''''''''''''''''''''''''''''	Danger of explosion:				
Upper:         Not determined March pressure:         Not determined.           Vegor dessure:         Not applicable.         Not applicable.           Vegor dessure:         Not applicable.         Not applicable.           Vegor dessure:         Not applicable.         Not applicable.           Vegor dessure:         Hydrogras.         Hydrogras.           Partition conflicient (no-cetanolwater): Not applicable.         Not applicable.           Vegor dessure:         Not applicable.         Not applicable.           Char Information Incom.         Not applicable.         Not applicable.           Pressibility of hzardous resections No angression will not occur if used and stored according to specifications.         Possibility of hzardous resections Nown           Conditions to avoid Not Unite relevant information available.         Not applicable.         Not applicable.           Mot applicable.         Not applicable.         Not applicable.         Not applicable.           Vegor dessition products:         Contin monon applicable. <t< td=""><th>Explosion limits:</th><th></th><td></td></t<>	Explosion limits:				
Paids Paids Pressive:         Not applicable.           Pressive:         Not applicable.           Vapor density:         Not applicable.           Otsability and reactivity:         Not applicable.           Atternation:         Not applicable.           Obstation:         Not applicable.           Obstation:         Not applicable.           Vapor density:         Not applicable.           Vap					
Relative density         Not determined. Not applicable. Not applicable. Not applicable.           Solubility in / Miscibility with Water.         Hydrokable. Hydrokable.           Solubility in / Miscibility with Water.         Hydrokable.           Otablity and reactivity         Not applicable. Not applicable.           O Stability and reactivity         Not applicable. Not applicable.           O Stability and reactivity         Not applicable. Not applicable.           O Stability of hazerdous reactions to be worked.         Not applicable.           O Stability and reactivity         Not applicable.           O Stability of hazerdous reactions to be worked.         Not applicable.           O Stability of hazerdous reactions to be avoide.         Decomposition / conditions to be avoide.           Overding agents Bases         Conditions to be avoide.         Decomposition / conditions to be avoide.           I Toxicological Information         Information on toxicological effects         Conditions to be avoide for annow indiverse.           Applicable.         Stability in training a strong contains effect on mouth and threat and to the danger of perforation of esophagus and stomach.           Star Infration on corcological effects         Strong contains defined for the form the EPA, IARC, NTP, OSHA or ACGHL.           Strong contains defined barrance avoid by the strong contains effect in now than and threat and to the danger of perforation of esophagus and stomach.	Vapor pressure:	Not applicable.			
Vego density         Mot applicable.           Water         Not applicable.           Water         Not applicable.           Partition coefficient (n-octanol/water): Not determined.         Not applicable.           Water         Not applicable.           Water         Not applicable.           Water         Not applicable.           Water         Not applicable.           Ottability and reactivity         Reactivity No. Information Norum.           Chemical stability Saleb under recommended storage conditions.         Permitting coefficient (n-octanol/water).           Partition coefficient (n-octanol/water).         Not built of comparison over the second stored according to specifications.           Permitting of No Inther relevant information available.         Incompable materials:           Incompable materials:         Reservity No. No Inther relevant information available.           Hardonis to avoid No Inther relevant information available.         Incompable materials:           Hardonis de congosting apoints         Reservity No. Stability and reactivity of the second stored according to specifications.           Hardonis de congosting apoints         Reservity No. Stability St		Not determined.			
Statistics         Production           Settion         Constraints           Partition         Constraints           Office         Marketing           Partition         Constraints           Other         Marketing           Office         Marketing           Marketing         Marketing           Marketing<	Vapor density	Not applicable.			
Water         Hydrolyzes           Partition coefficient (n-octanol/water): Not explicable.         Not explicable.           Winnerstein         Not explicable.           Other information         Not explicable.           Other information         Not explicable.           Other information         Not further relevant information available.           Of Stability and reactivity         Reactivity No. Information known.           Chemical stability Stable under recommended storage conditions.         Provide the storage of the stor		пот аррисаріе.			
Viscosity: dynamic: dyna	Water:	Hydrolyzes			
dynamic:         Not applicable. No further relevant information available.           Otsibility and reactivity         Reactivity No information known. Chamical stability Stable inder recommended storage conditions. Chamical stability Stable inder recommended storage conditions. Conditions to avoid No further relevant information available. The compatible materials: Conditions to avoid No further relevant information available. Transation on toxicological effects Active toxicity: Swalewing will lead to a storag corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach. Diff. Stability and recomposition products: Cardin monoxide and cathon dixade Stability condes (SDA) (Stability and recomposition products: Cardin monoxide and cathon dixade Stability condes (SDA) (Stability condes (SDA)) (Stability condes (SDA)	Viscosity:				
Other information         No fulfibility and reactivity           9 Stability and reactivity           Peacitivity No. information incomm.           Chemical stability Stable under recommended storage conditions.           Pressibility of hazardous reactions No dengerous reactions Known           Conditions to be avoided:           Peasitivity No intervention incomm.           Conditions to be avoided:           Conditions to be avoided:           Optimizing agents           Bases           Masses           Carbon monoxide and carbon dixude           Hydrogen Rhords           Stability of hazardous decomposition roducts:           Carbon monoxide and carbon dixude           Hydrogen Rhords           Stuff conders (SOA)           Stuff conders (SOA)	dynamic:				
Reactivity No information known.       Chemical stability Stabile under recommended storage conditions.         Chemical stability Stabile under recommended storage conditions.       Pressibility of haardous reactions No dengeous reactions No Mengeous reactions reactification reactions reactification reactification: No data Stan intrilation or corrosten: Causes servere skin burns.                 Provide reacting No Mengeous reactions No Mengeous reactions No Mengeous reactification reactification reactification: No data Stan intrilation reactification reactification reactification reactification reactification: No data Stan intrilation reactification reactifications reactification reactin reactin reactification reacting reactification reacti					
1 Toxicological information         Information on toxicological effects         Acute toxicity: Swallowing will lead to a strong corresive effect on mouth and threat and to the danger of perforation of esophagus and stomach.         Skin irritations or corrosion: Causes serious eye damage.         Sensitization: No sensitizing effects known.         Garcinogenicity: No effects known.         Garcinogenicity: No sensitization effects known.         Garcinogenicity: No effects known.         Specific target organ system toxicity - repeated exposure: No effects known.         Specific target organ system toxicity - single exposure: No effects known.         Specific target organ system toxicity - single exposure: No effects known.         Subacute to chronic toxicity: No effects known.         Subacute to chronic toxicity: No effects known.         Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.         2 Ecological information         Toxicity         Aquatic toxicity: No further relevant information available.         Bioaccumulative potential No further relevant information available.         Mobility in soil No further relevant information available.         Do not allow material to be released to the environment without proper governmental permits.         Do not allow material to be released to the environment without proper governmental permits.	Water/moisture <b>Hazardous decomposition products:</b> Carbon monoxide and carbon dioxide Hydrogen chloride (HCl) Sulfur oxides (SOx)				
Toxicity Aquatic toxicity: No further relevant information available. Persistence and degradability No further relevant information available. Bioaccumulative potential No further relevant information available. Mobility in soil No further relevant information available. Additional ecological information: General notes: Do not allow material to be released to the environment without proper governmental permits. Do not allow undiluted product or large quantities to reach ground water, water course or sewage system. Avoid transfer into the environment. Results of PBT and vPvB assessment PBT: Not applicable. VPvB: Not applicable. Other adverse effects No further relevant information available. 3 Disposal considerations Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal.	Acute toxicity: Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach. LD/LC50 values that are relevant for classification: No data Skin irritation or corrosion: Causes severe skin burns. Eye irritation or corrosion: Causes severe skin burns. Eye irritation or corrosion: Causes severe admage. Sensitization: No sensitizing effects known. Germ cell mutagenicity: No effects known. Carcinogenicity: No effects known. Carcinogenicity: No effects known. Specific target organ system toxicity - repeated exposure: No effects known. Specific target organ system toxicity - single exposure: No effects known. Aspiration hazard: No effects known. Subacute to chronic toxicity: No effects known.				
Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal.	Toxicity Aquatic toxicity: No further relevant information available. Persistence and degradability No further relevant information available. Bioaccumulative potential No further relevant information available. Mobility in soil No further relevant information available. Additional ecological information: General notes: Do not allow material to be released to the environment without proper governmental permits. Do not allow undiluted product or large quantities to reach ground water, water course or sewage system. Avoid transfer into the environment. Results of PBT and vPvB assessment PBT: Not applicable. VPVB: Not applicable.				
Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal.	13 Disposal considerations				
Recommendation Consult state, local or national regulations to ensure proper disposal.					
(Contd. or page USA		or national regulations to ensure proper disposal.			
			(Contd. on page 4) USA –		

	Printing date 11/24/2015 Reviewed on 12/15/2008		
Product name: 3,5-Difluorobenzenesulfonyl chloride			
<b>Uncleaned packagings:</b> <b>Recommendation:</b> Disposal must be made according to official regulations.	(Contd. of page 3)		
14 Transport information			
UN-Number DOT, IMDG, IATA	UN3261		
UN proper shipping name DOT	Corrosive solid, acidic, organic, n.o.s. (3,5-Difluorobenzenesulfonyl chloride) CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (3,5-Difluorobenzenesulfonyl		
IMDG, IATA	chloride)		
Transport hazard class(es) DOT			
Constant -			
Class Label	8 Corrosive substances. 8		
Class Label IMDG, IATA	8 (C4) Corrosive substances 8		
Class Label	8 Corrosive substances. 8		
Packing group DOT, IMDG, IATA	11		
Environmental hazards:	Not applicable.		
Special precautions for user Segregation groups	Warning: Corrosive substances Acids		
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.			
Transport/Additional information: DOT			
Marine Pollutant (DOT):	No		
UN "Model Regulation":	UN3261, Corrosive solid, acidic, organic, n.o.s. (3,5-Difluorobenzenesulfonyl chloride), 8, II		
Safety, health and environmental regulations/legislation specific for the s GHS label elements The product is classified and labeled in accordance with Hazard pictograms GHS05	ZY CFR 1910 (USHA HCS)		
Signal word Danger Hazard statements H314 Causes severe skin burns and eye damage. Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapours/spray. P303+P361+P353 If on skin (or hair): Take off immediately all contaminated cle P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P405 Store locked up. P501 Dispose of contents/container in accordance with local/regin National regulations This product is not listed in the U.S. Environmental Protection Agency Toxic St to research and development only. This product must be used by or directly un product must not be used for commercial purposes or in formulations for comm SARA Section 313 (specific toxic chemical listings) Substance is not listed. Prop 65 - Chemicals known to cause cancer Substance is not listed. Prop 65 - Developmental toxicity, female Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Prop 65 - Developmental toxicity, male Substance is not listed. Prop 65 - Developmental toxicity, according to the REACH Regula The conditions of restrictions according to Article 67 and Annex XVII of the market and use must be observed. Substance is not listed.	s. Remove contact lenses, if present and easy to do. Continue rinsing. onal/national/international regulations. Jostances Control Act Chemical Substance Inventory. Use of this product is restricted der the supervision of a technically qualified individual as defined by TSCA. This nercial purposes. Viduals. Intions (EC) No. 1907/2006. Substance is not listed. The Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the ubstance is not listed.		

## Product name: 3,5-Difluorobenzenesulfonyl chloride

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USA

- ICAO: International Civil Aviation Organization ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO) ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transport Association CAS: Chemical Abstracts Service (division of the American Chemical Society) HMIS: Hazardous Materials Identification System (USA) WHMIS: Workplace Hazardous Materials Information System (Canada) LC50: Lethal concentration, 50 percent VPVB: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Troxicology Program (USA) IARC: International Protection Agency (USA)