

Safety Data Sheet per OSHA HazCom 2012

1 Identification Product identifier Product name: Quinoline-3-carboxaldehyde Stock number: L13815 CAS Number: 13669-42-6 EC number: 234-147-7 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: Alfa Aesar Thermo Fisher Scientific Chemicals, Inc. Inerrito Fisher Scheman C. 30 Bond Street Ward Hill, MA 01835-8099 Tel: 800-343-0660 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) ! GHS07 Skin Irrit. 2 H315 Causes skin irritation. Eye Irrit. 2A H319 Causes serious eye irritation. STOT SE 3 H335 May cause respiratory irritation. 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 GHS07 Signal word Warning Hazard statements H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation. Precautionary statements P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P280 Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations. P405 WHMIS classification D2B - Toxic material causing other toxic effects Ţ Classification system HMIS ratings (scale 0-4) (Hazardous Materials Identification System) Health (acute effects) = 1Flammàbility = 1 Physical Hazard = 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: 13669-42-6 Quinoline-3-carboxaldehyde Identification number(s): EC number: 234-147-7 4 First-aid measures Description of first aid measures After inhalation Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice. After skin contact Immediately wash with water and soap and rinse thoroughly. (Contd. on page 2)

## Product name: Quinoline-3-carboxaldehyde (Contd. of page 1) Seek immediate medical advice. After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor. After swallowing Seek medical treatment. Information for doctor Most important symptoms and effects, both acute and delayed No further relevant information available. Indication of any immediate medical attention and special freatment needed No further relevant information available. 5 Fire-fighting measures Extinguishing media Suitable extinguishing agents Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam. 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 Nitrogen oxides (NOX) Advice for fireficience 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: Ensure adequate ventilation. Prevention of secondary hazards: No special measures required. Reference to other sections Concentration for 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 Precautions for safe manuning 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. Further information about storage conditions: Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. 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 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 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:** Safety glasses **Body protection:** Protective work clothing. 9 Physical and chemical properties Information on basic physical and chemical properties General Information Appearance: Form: Color: Powder White Odor: Not determined Odor threshold: Not determined pH-value: Not applicable. Change in condition Melting point/Melting range: Boiling point/Boiling range: Sublimation temperature / start: 68-71 °C (154-160 °F) Not determined Not determined Flash point: Flammability (solid, gaseous) Not applicable Not determined.

(Contd. on page 3)

## Product name: Quinoline-3-carboxaldehyde

Implicit emperature:         Not determined           Auto granting:         Not determined           Upper:         Not determined           Upper:         Not determined           Upper:         Not determined           Density:         Not determined           Stability of Maschall         Not applicable           Partition coefficient (n-octano/water): Not determined.         Not applicable.           Other Information         No applicable.         Not applicable.           Other Information chonen.         No applicable.         Not applicable.           Density: Not applicable.         Not applicable.			(Contd. of page 2)
Danger of explosion:         Product dates not present an explosion hazard.           Explosion         Net determined           Upper         Net determined           Upper         Net determined           Upper         Net determined           Upper         Net determined           Statistics         Net determined.           Upper formation         Net determined.           Statistics         Net determined.           Very partition coefficient (noccance/very Net determined.         Net applicable.           Very partition coefficient (noccance/very Net determined.         Net applicable.           Very partition coefficient (noccance/very Net applicable.         Net applicable.           Other information         Not applicable.           Very partition coefficient (noccance/very Net applicable.         Net applicable.           Other information         Not applicable.           Very partition coefficient (noccance/very Net applicable.         Net applicable.           Very partition coefficient (noccance/very Net applicable.         Not applicable.           Very partition coefficient (noccance/very Net applicable.         Not applicable.           Very partition coefficient (noccance/very partition (not noccar if used and stored according to specifications.         Not applicable.           Very partition (noccance/very partition	Decomposition temperature:	Not determined	(
Lyper:         Not determined with processing           Very processing         Not applicable with processing           Very processing <td< td=""><td>Danger of explosion:</td><th></th><td></td></td<>	Danger of explosion:		
Upper:         Not determined to operation of the start determined in the start determined in		Not determined	
Detection         Model determined           Detection:         Model applicable.           Very approximation rate.         Model applicable.           Particles root/ficture (in-controlwards).         Model applicable.           Particles root/ficture (in-controlwards).         Model applicable.           Very approximation         Model applicable.           Annalysis         Model applicable.	Upper:	Not determined	
Relative density         Not electromized.           Solubility in / Miscibility with         Hostebale:           Solubility in / Miscibility with         Hostebale:           Partition confliction (Incortation (Incortation available:         Hostebale:           Solubility and reactivity         Mot applicable:           Partition confliction (Incortation (Incortation available:         Hostebale:           Other information         No Infrare relevant information available:           Other information         No Infrare relevant information available:           Other information on conflictions to be availed: Decomposition will not occur if used and stored according to specifications:           Promotery Build Solution information           Incortability on the availed information information on the available:           Incortability on the availed information on twoicological effects           Value partity: No shifts information information on twoicological effects           Shift infrariation or corresolin: Causes skift infrantance:           Shift infraintion or corresolin: Causes skift i		Not applicable. Not determined	
Varies of ensity:         Not applicable.           Soliability in Maschilly with Witeso in Maschilly with Maschilly with Maschilly with Maschilly with Maschilly in Maschilly with Maschilly with Maschilly in Maschilly with Maschily Maschilly With Maschilly With Maschilly With Maschi	Relative density		
Solutiony in Miscibility with	Vapor density		
Water:         Instability           Weter:         Instability           Weter:         Wet applicable.           Stability and reactivity         Reactivity. Notiforms how meter           Reactivity Notiforms how meter         Reactivity. Stability applicable.           Control in discomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.           Conditions to applicable materials:         Oxidinations to be avoided: Decomposition will not occur if used and stored according to specifications.           Conditions to applicable materials:         Oxidination applicable materials:         Oxidination applicable materials:           Incomposition on toxicological information         Incomposition on toxicological effects           Low constraint         Do advoide: Straint monoxisous straints:         Devided: Straint monoxisous straints:           Sensitization:         No sensitizing effects incom         Straints:           Sensitization:         Sensitization:         Sensitization:         Sensitization:           Sensitization:         Sensitization:         Sensitization:         Sensitation stoperestrainge           Senstr		Not applicable.	
Viscosity: Viscosity: Viscosity: Viscosity: Viscosity: Viscosity: Participation: Partic	Water:		
dynamic: Other information         No splicable No luther relevant information available.           9 Stability and reactivity Reactivity No information known.         No luther relevant with out occur if used and stored according to specifications.           Control of Stability Stabie under recommended storage conditions. Therminal decomposition is conditions to ear widef. Decomposition will not occur if used and stored according to specifications.           Conditions to work No kurther relevant information available.           Toxicological information           Index store of the split of		: Not determined.	
Other Information         No further relevant information available.           5 Stability and reactivity         Reactivity No information known.           Chemical stability Stability Stability Distributions for any one avoided: Decomposition will not occur if used and stored according to specifications.           Possibility of Nationaston known.           Conditions to avoid No infiner relevant information available.           Passibility of Nationaston No dangerous reactions Known.           Carlon monocide and carbon dioxide           Information nonocide and carbon dioxide           Specific trapper toxicly: No effects known.           Specific trapper organ system toxicly: - epised exposure: Not carbon separation           Specific trapper organ system toxicly: No effects known.           Specific trapper organ system toxicly: No effects known.           Subacte to chonic toxicly: No effects known.           Subacte to toxicly: No effects known.           Subacte to toxicly: No effects known.           Subacte to toxicly: No effects known.	dynamic:		
Reactivity No intermation known.         Example at storage conditions: to be avoided. Discomposition will not occur if used and stored according to specifications.           Conditions to void No further relevant information available.         Storage and the storage available.           Framework and the storage available.         Storage available.           Incompatible materials:         Conditions to void No further relevant information available.           Incompatible materials:         Conditions to void No further relevant information.           Information on toxicological effects         Storage available.           Information on correstors:         Consultable from the EPA, IARC, NTP, OSHA or ACGH.           Example information on correstors:         Consultable from the EPA, IARC, NTP, OSHA or ACGH.           Event Cell muterial constraints.         Storage available from the EPA, IARC, NTP, OSHA or ACGH.           Specific target organ system toxicity - reperted exposure: No effects known.         Specific target organ system toxicity - reperted exposure: No effects known.           Specific target organ system toxicity - single exposure: May cause respiratory initation.         Storage available.           Subsection to toxicity of the effects         Normality of the subscingtory of the effects known.           Specific target organ system toxicity - reperted exposure: No effects known.         Specific target organ system toxicity - reperted exposure:		Not applicable. No further relevant information available.	
Nitrogen oxides           1 Toxicological information Information or toxicological effects Acute toxicity: No effects information.           Acute toxicity: No effects information.           Sensitization: No sensitizing effects inform.           Germ call mutagenicity: No effects inform.           Germ call mutagenicity: No effects inform.           Germ call mutagenicity: No effects inform.           Specific target organ system toxicity: repeated exposure: No effects known.           Specific target organ system toxicity: repeated exposure: No effects known.           Specific target organ system toxicity: repeated exposure: No effects known.           Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.           22 Ecological information           Toxicity           Aquatic toxicity: No further relevant information available.           Persistence and degradability No further relevant information available.           Results of PT and V+PG assessment           PVH: Not applicable.           VH: Not applicable.           PVH: Not applicable.           Other adverse effects No further relevant information available.	Chemical stability Stable under recomm Thermal decomposition / conditions to Possibility of hazardous reactions No Conditions to avoid No further relevant Incompatible materials: Oxidizing agen Hazardous decomposition products:	o be avoided: Decomposition will not occur it used and stored according to specifications. o dangerous reactions known t information available.	
Information on toxicological effects Actuet toxicity: No effects known. LDI.250 values that are relevant for classification: No data Skin Irritation or corrosion: Causes skin irritation. Sensification is No sensitizing effects known. Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH. Reproductive Oxicity: No effects known. Specific target organ system toxicity - single exposure: No effects known. Subacute to chronic toxicity: No effects known. Subacute toxicity: Subacute toxicity of this substance is not fully known. Subacute toxicity: Subacute toxicity of the subacute toxicity of this substance is not fully known. Subacute toxicity: Subacute toxicity of the subacute toxicity of the subacute toxicity of the subacute toxi	Nitrogen oxides		
Toxicity Aquatic toxicity: No further relevant information available. Persistence and degradability No further relevant information available. Mobility in soil No further relevant information available. Mobility in soil 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. Avoid transfer into the environment. Results of PBT and VPMB assessment PBT: Not applicable. VPMB: Not applicable. Other adverse effects No further relevant information available. 3 Disposal considerations Waste treatment methods Recommendation: Disposal must be made according to ensure proper disposal. Uncleaned packagings: Recommendation: Disposal must be made according to official regulations. 4 Transport information Not a hazardous material for transportation. UN-Number DOT, MIDG, IATA None DOT, ADR, IMDG, IATA None DOT, ADR, IMDG, IATA None PDT, MDG, IATA None PDT, IMDG, IATA None PDT PDT PDT PDT PDT PDT PDT PDT PDT PDT	Acute toxicity: No effects known. LD/LC50 values that are relevant for c Skin irritation or corrosion: Causes sk Eye irritation or corrosion: Causes ser Sensitization: No sensitizing effects kno Germ cell mutagenicity: No effects know Carcinogenicity: No classification data Reproductive toxicity: No effects know Specific target organ system toxicity - Specific target organ system toxicity - Aspiration hazard: No effects known. Subacute to chronic toxicity: No effects	<ul> <li>in irritation.</li> </ul>	
Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal. Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.         4 Transport information Not a hazardous material for transportation.         UN-Number DOT, IMDG, IATA       None         UN proper shipping name DOT, IMDG, IATA       None         Transport hazard class(es)       None         DOT, ADR, IMDG, IATA       None         Packing group DOT, IMDG, IATA       None         Packing Broup       Not applicable.	Toxicity Aquatic toxicity: No further relevant info Persistence and degradability No furth Bioaccumulative potential No further re Mobility in soil No further relevant inforn Additional ecological information: General notes: Do not allow material to be released to th Avoid transfer into the environment. Results of PBT and vPvB assessment PBT: Not applicable. VPvB: Not applicable.	elevant information available. mation available. he environment without proper governmental permits. <b>t</b>	
Waste treatment methods Recommendation Consult state, local or national regulations to ensure proper disposal. Uncleaned packagings: Recommendation: Disposal must be made according to official regulations.         4 Transport information Not a hazardous material for transportation.         UN-Number DOT, IMDG, IATA       None         UN proper shipping name DOT, IMDG, IATA       None         Transport hazard class(es)       None         DOT, ADR, IMDG, IATA       None         Packing group DOT, IMDG, IATA       None         Packing Broup       Not applicable.	13 Disposal considerations		
Not a hazardous material for transportation.         UN-Number DOT, IMDG, IATA       None         UN proper shipping name DOT, IMDG, IATA       None         Transport hazard class(es)       None         DOT, ADR, IMDG, IATA       None         Packing group DOT, IMDG, IATA       None         Packing group DOT, IMDG, IATA       None         Packing group DOT, IMDG, IATA       None         Special precautions for user       Not applicable.	Waste treatment methods Recommendation Consult state, local o Uncleaned packagings:		
DOT, IMDG, IATA       None         UN proper shipping name       None         DOT, IMDG, IATA       None         Transport hazard class(es)       None         DOT, ADR, IMDG, IATA       None         Packing group       None         DOT, IMDG, IATA       None         Packing group       None         Environmental hazards:       Not applicable.         Special precautions for user       Not applicable.	<b>4 Transport information</b> Not a hazardous material for transportati	ion.	
DOT, IMDG, IATA       None         Transport hazard class(es)       None         DOT, ADR, IMDG, IATA       None         Packing group       None         DOT, IMDG, IATA       None         Packing group       None         DOT, IMDG, IATA       None         Special precautions for user       Not applicable.	UN-Number DOT, IMDG, IATA	None	
DOT, ADR, IMDG, IATA     None       Packing group     None       DOT, IMDG, IATA     None       Environmental hazards:     Not applicable.       Special precautions for user     Not applicable.	UN proper shipping name DOT, IMDG, IATA	None	
Packing group DOT, IMDG, IATA       None         Environmental hazards:       Not applicable.         Special precautions for user       Not applicable.	DOT, ADR, IMDG, IATA	None	
Environmental hazards:     Not applicable.       Special precautions for user     Not applicable.	Packing group		
Special precautions for user Not applicable.			
	Environmental hazards	Not applicable	

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USA -

roduct name: Quinoline-3-carboxaldehyde	
	(Contd. of page
Transport/Additional information:	Not dangerous according to the above specifications.
DOT Marine Pollutant (DOT):	No
<ul> <li>P501 Dispose of contents/container in acco</li> <li>National regulations</li> <li>This product is not listed in the U.S. Environmental Prote</li> <li>to research and development only. This product must be</li> <li>product must not be used for commercial purposes or in 1</li> <li>SARA Section 313 (specific toxic chemical listings) S</li> <li>California Proposition 65</li> <li>Prop 65 - Developmental toxicity, female Substance is not liste</li> <li>Prop 65 - Developmental toxicity, male Substance is not liste</li> <li>Prop 65 - Developmental toxicity, male Substance is no</li> <li>Information about limitation of use: For use only by teq</li> <li>Other regulations, limitations and prohibitive regulati</li> </ul>	apours/spray. hing/eye protection/face protection. ter for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. air and keep comfortable for breathing. rdance with local/regional/national/international regulations. ction Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted used by or directly under the supervision of a technically qualified individual as defined by TSCA. This formulations for commercial purposes. bubstance is not listed. d. rot listed. d. rot listed. ot lis
6 Other information Employers should use this information only as a supplem	nent to other information gathered by them, and should make independent judgement of suitability of this
information to ensure proper use and protect the health a	nd safety of employees. This information is furnished without warranty, and any use of the product not in combination with any other product or process, is the responsibility of the user.
Department issuing SDS: Global Marketing Department Date of preparation / last revision 11/24/2015 / - Abbreviations and acronyms: IMDG: International Maritime Code for Dangerous Goods DOT: US Department of Transportation IATA: International Air Transport Association EINECS: European Inventory of Existing Commercial Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Societ HMIS: Hazardous Materials Identification System (USA) WHMIS: Workplace Hazardous Materials Information System (Canada) LC50: Lethal concentration, 50 percent LD50: Lethal concentration, 50 percent VPW: very Persistent and very Bioaccumulative ACGIH: American Conference of Governmental Industrial Hygienists (USA) OSHA: Occupational Safety and Health Administration (USA) NTP: National Toxicology Program (USA) NTP: National Toxicology Program (USA)	t (y)

IARC: International Agency for Research on Cancer EPA: Environmental Protection Agency (USA)