

Creation Date 14-Mar-2012

Revision Date 04-Feb-2024

Revision Number 5

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: **3-Chlorothiophene**
Cat No. : **L16144**
CAS No 17249-80-8
Molecular Formula C4 H3 Cl S
REACH registration number -

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

Recommended Use Laboratory chemicals.
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company

Thermo Fisher (Kandel) GmbH
Erlenbachweg 2, 76870 Kandel, Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300

Swiss distributor - Fisher Scientific AG
Neuhofstrasse 11, CH 4153 Reinach
Tel: +41 (0) 56 618 41 11
<https://www.fishersci.ch/ch/en/customer-help-support/forms/email-us.html>

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

customers in Switzerland:
Tox Info Suisse Emergency Number: **145 (24hr)**
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)
Chemtrec (24h) Toll-Free: 0800 564 402
Chemtrec Local: +41-43 508 20 11 (Zurich)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

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Physical hazards

Flammable liquids

Category 3 (H226)

Health hazards

Acute oral toxicity

Skin Corrosion/Irritation

Serious Eye Damage/Eye Irritation

Reproductive Toxicity

Specific target organ toxicity - (single exposure)

Category 4 (H302)

Category 2 (H315)

Category 1 (H318)

Category 1B (H360D)

Category 3 (H335)

Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H226 - Flammable liquid and vapor

H335 - May cause respiratory irritation

H315 - Causes skin irritation

H302 - Harmful if swallowed

H318 - Causes serious eye damage

H360D - May damage the unborn child

Precautionary Statements

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

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

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

Additional EU labelling

Restricted to professional users

2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
3-Chlorothiophene	17249-80-8		95-100	STOT SE 3 (H335) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Acute Tox. 4 (H302) Flam. Liq. 3 (H226)
N,N-Dimethylformamide	68-12-2	200-679-5	1-5	Flam. Liq. 3 (H226) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Eye Irrit. 2 (H319) Repr. 1B (H360D)

REACH registration number	-
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Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Eye Contact	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Inhalation	Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Self-Protection of the First Aider	Use personal protective equipment as required.

4.2. Most important symptoms and effects, both acute and delayed

Difficulty in breathing. Causes eye burns. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically.
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SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons

No information available.

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5.2. Special hazards arising from the substance or mixture

Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Sulfur oxides, Hydrogen chloride gas.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not breathe mist/vapors/spray. Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area.

Technical Rules for Hazardous Substances (TRGS) 510
Storage Class (LGK) (Germany)

Class 3

Switzerland - Storage of hazardous substances

Storage class - SC 3
<https://www.kvu.ch/de/themen/stoffe-und-produkte>
<https://www.kvu.ch/fr/themes/substances-et-produits>
<https://www.kvu.ch/it/temi/sostanze-e-prodotti>

7.3. Specific end use(s)

Use in laboratories

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

Component	European Union	The United Kingdom	France	Belgium	Spain
N,N-Dimethylformamide	TWA: 15 mg/m ³ (8h) TWA: 5 ppm (8h) Skin STEL: 10 ppm (15min) STEL: 30 mg/m ³ (15min) STEL: 30 mg/m ³ (8h) STEL: 10 ppm (8h)	STEL: 10 ppm 15 min STEL: 30 mg/m ³ 15 min TWA: 5 ppm 8 hr TWA: 15 mg/m ³ 8 hr Skin	TWA / VME: 5 ppm (8 heures). restrictive limit TWA / VME: 15 mg/m ³ (8 heures). restrictive limit STEL / VLCT: 30 mg/m ³ . restrictive limit STEL / VLCT: 10 ppm. restrictive limit Peau	TWA: 5 ppm 8 uren TWA: 15 mg/m ³ 8 uren STEL: 10 ppm 15 minuten STEL: 30 mg/m ³ 15 minuten Huid	STEL / VLA-EC: 10 ppm (15 minutos). STEL / VLA-EC: 30 mg/m ³ (15 minutos). TWA / VLA-ED: 5 ppm (8 horas) TWA / VLA-ED: 15 mg/m ³ (8 horas) Piel

Component	Italy	Germany	Portugal	The Netherlands	Finland
N,N-Dimethylformamide	TWA: 5 ppm 8 ore. Time Weighted Average TWA: 15 mg/m ³ 8 ore. Time Weighted Average STEL: 10 ppm 15 minuti. Short-term STEL: 30 mg/m ³ 15 minuti. Short-term Pelle	TWA: 5 ppm (8 Stunden). AGW - exposure factor 2 TWA: 15 mg/m ³ (8 Stunden). AGW - exposure factor 2 TWA: 5 ppm (8 Stunden). MAK TWA: 15 mg/m ³ (8 Stunden). MAK Höhepunkt: 10 ppm Höhepunkt: 30 mg/m ³ Haut	STEL: 10 ppm 15 minutos STEL: 30 mg/m ³ 15 minutos TWA: 10 ppm 8 horas TWA: 30 mg/m ³ 8 horas Pele	huid STEL: 30 mg/m ³ 15 minuten TWA: 15 mg/m ³ 8 uren	TWA: 5 ppm 8 tunteina TWA: 15 mg/m ³ 8 tunteina STEL: 10 ppm 15 minuutteina STEL: 30 mg/m ³ 15 minuutteina Iho

Component	Austria	Denmark	Switzerland	Poland	Norway
N,N-Dimethylformamide	Haut MAK-KZGW: 10 ppm 15 Minuten MAK-KZGW: 30 mg/m ³ 15 Minuten MAK-TMW: 5 ppm 8 Stunden MAK-TMW: 15 mg/m ³ 8 Stunden	TWA: 5 ppm 8 timer TWA: 15 mg/m ³ 8 timer STEL: 30 mg/m ³ 15 minutter STEL: 10 ppm 15 minutter Hud	Haut/Peau STEL: 10 ppm 15 Minuten STEL: 30 mg/m ³ 15 Minuten TWA: 5 ppm 8 Stunden TWA: 15 mg/m ³ 8 Stunden	STEL: 30 mg/m ³ 15 minutach TWA: 15 mg/m ³ 8 godzinach	TWA: 5 ppm 8 timer TWA: 15 mg/m ³ 8 timer STEL: 10 ppm 15 minutter. value from the regulation STEL: 30 mg/m ³ 15 minutter. value from the regulation Hud

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
N,N-Dimethylformamide	TWA: 5 ppm TWA: 15 mg/m ³ STEL : 10 ppm STEL : 30 mg/m ³ Skin notation	kože TWA-GVI: 5 ppm 8 satima. TWA-GVI: 15 mg/m ³ 8 satima. STEL-KGVI: 10 ppm 15 minutama. STEL-KGVI: 30 mg/m ³ 15 minutama.	TWA: 5 ppm 8 hr. TWA: 15 mg/m ³ 8 hr. STEL: 10 ppm 15 min STEL: 30 mg/m ³ 15 min Skin	Skin-potential for cutaneous absorption STEL: 30 mg/m ³ STEL: 10 ppm TWA: 15 mg/m ³ TWA: 5 ppm	TWA: 15 mg/m ³ 8 hodinách. Potential for cutaneous absorption Ceiling: 30 mg/m ³ toxic for reproduction

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
N,N-Dimethylformamide	Nahk TWA: 5 ppm 8 tundides. TWA: 15 mg/m ³ 8 tundides. STEL: 10 ppm 15 minutites.	Skin notation TWA: 15 mg/m ³ 8 hr TWA: 5 ppm 8 hr STEL: 30 mg/m ³ 15 min STEL: 10 ppm 15 min	skin - potential for cutaneous absorption STEL: 10 ppm STEL: 30 mg/m ³ TWA: 5 ppm TWA: 15 mg/m ³	STEL: 30 mg/m ³ 15 percekbén. CK TWA: 15 mg/m ³ 8 órában. AK lehetséges borón keresztül felszívódás	STEL: 30 mg/m ³ absorption into the body through the skin may cause life-threatening harm STEL: 10 ppm

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	STEL: 30 mg/m ³ 15 minutites.				absorption into the body through the skin may cause life-threatening harm TWA: 5 ppm 8 klukkustundum. TWA: 15 mg/m ³ 8 klukkustundum. Skin notation
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Component	Latvia	Lithuania	Luxembourg	Malta	Romania
N,N-Dimethylformamide	skin - potential for cutaneous exposure STEL: 10 ppm STEL: 30 mg/m ³ TWA: 5 ppm TWA: 15 mg/m ³	TWA: 5 ppm IPRD TWA: 15 mg/m ³ IPRD Oda STEL: 10 ppm STEL: 30 mg/m ³	Possibility of significant uptake through the skin TWA: 15 mg/m ³ 8 Stunden TWA: 5 ppm 8 Stunden STEL: 30 mg/m ³ 15 Minuten STEL: 10 ppm 15 Minuten	possibility of significant uptake through the skin TWA: 15 mg/m ³ TWA: 5 ppm STEL: 30 mg/m ³ 15 minuti STEL: 10 ppm 15 minuti	Skin notation TWA: 5 ppm 8 ore TWA: 15 mg/m ³ 8 ore STEL: 10 ppm 15 minute STEL: 30 mg/m ³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
N,N-Dimethylformamide	Skin notation MAC: 10 mg/m ³	Ceiling: 30 mg/m ³ Potential for cutaneous absorption TWA: 5 ppm TWA: 15 mg/m ³	TWA: 5 ppm 8 urah TWA: 15 mg/m ³ 8 urah Koža STEL: 10 ppm 15 minutah STEL: 30 mg/m ³ 15 minutah	Binding STEL: 10 ppm 15 minuter Binding STEL: 30 mg/m ³ 15 minuter TLV: 5 ppm 8 timmar. NGV TLV: 15 mg/m ³ 8 timmar. NGV Hud	Deri TWA: 5 ppm 8 saat TWA: 15 mg/m ³ 8 saat STEL: 10 ppm 15 dakika STEL: 30 mg/m ³ 15 dakika

Biological limit values

List source(s):

Component	European Union	United Kingdom	France	Spain	Germany
N,N-Dimethylformamide			Total N-Methylformamide: 40 mg/g creatinine urine end of shift	N-Acetyl-S-(N-methylcarbamoyl) cysteine: 40 mg/L urine start of last shift of workweek N-Methylformamide: 15 mg/L urine end of shift	N,N-Methylformamide plus N-Hydroxymethyl-N-methylformamide: 20 mg/L urine (end of shift) N-Acetyl-S-(methylcarbamoyl)-L-cystein: 25 mg/g Creatinine urine (end of shift) N-Acetyl-S-(methylcarbamoyl)-L-cystein: 25 mg/g Creatinine urine (for long-term exposures: at the end of the shift after several shifts)

Component	Italy	Finland	Denmark	Bulgaria	Romania
N,N-Dimethylformamide					Methyl-formamide: 15 mg/L urine end of shift

Component	Gibraltar	Latvia	Slovak Republic	Luxembourg	Turkey
N,N-Dimethylformamide			N-Methylformamide: 35 mg/L urine end of exposure or work shift		

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography

MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas

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chromatography

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
N,N-Dimethylformamide 68-12-2 (1-5)	DNEL = 5900µg/cm2	DNEL = 26.3mg/kg/day	DNEL = 446µg/cm2	DNEL = 1.1mg/kg/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
N,N-Dimethylformamide 68-12-2 (1-5)	DNEL = 30mg/m ³	DNEL = 30mg/m ³	DNEL = 15mg/m ³	DNEL = 6mg/m ³

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
N,N-Dimethylformamide 68-12-2 (1-5)	PNEC = 30mg/L	PNEC = 115.18mg/kg sediment dw	PNEC = 30mg/L	PNEC = 123mg/L	PNEC = 56.97mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water Intermittent	Food chain	Air
N,N-Dimethylformamide 68-12-2 (1-5)	PNEC = 3mg/L	PNEC = 11.52mg/kg sediment dw			

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection

Goggles (European standard - EN 166)

Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber Neoprene Natural rubber PVC	See manufacturers recommendations	-	EN 374	(minimum requirement)

Skin and body protection

Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

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Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141 When RPE is used a face piece Fit Test should be conducted
Environmental exposure controls	No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance	Light yellow	
Odor	pungent	
Odor Threshold	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	137 - 139 °C / 278.6 - 282.2 °F	@ 760 mmHg
Flammability (liquid)	Flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Flash Point	37 °C / 98.6 °F	Method - No information available
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	No information available	
Viscosity	No data available	
Water Solubility	No information available	practically insoluble
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
N,N-Dimethylformamide	-1.028	
Vapor Pressure	No data available	
Density / Specific Gravity	1.276	
Bulk Density	Not applicable	Liquid
Vapor Density	No data available	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	C4 H3 Cl S
Molecular Weight	118.59
Explosive Properties	explosive air/vapour mixtures possible

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

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10.3. Possibility of hazardous reactions

Hazardous Polymerization No information available.
Hazardous Reactions None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO₂). Sulfur oxides. Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

Oral Category 4
Dermal Based on available data, the classification criteria are not met
Inhalation Based on available data, the classification criteria are not met

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
N,N-Dimethylformamide	3040 mg/kg (Rat)	1500 mg/kg (Rabbit) 3.2 g/kg (Rat)	>5.58 mg/L/4h (Rat)

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory No data available
Skin No data available

Component	Test method	Test species	Study result
N,N-Dimethylformamide 68-12-2 (1-5)	Guinea Pig Maximisation Test (GPMT)	guinea pig	- non-sensitising

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

Component	EU	UK	Germany	IARC
N,N-Dimethylformamide				Group 2A

(g) reproductive toxicity; No data available
Reproductive Effects Category 1B.

(h) STOT-single exposure; Category 3

Results / Target organs Respiratory system.

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(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; No data available

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

Symptoms / effects, both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

Component	Freshwater Fish	Water Flea	Freshwater Algae
N,N-Dimethylformamide	Pimephales promelas: LC50 = 10.6 g/L/96h Onchorhynchus mykiss: LC50 = 9.8 g/L/96h Lepomis macrochirus: LC50 = 6.3 g/L/96h	EC50 = 7500 mg/L/48h	EC50 = 7500 mg/L/96h

Component	Microtox	M-Factor
N,N-Dimethylformamide	EC50 = 2000 mg/L 5 min EC50 = 570 mg/L 240 h	

12.2. Persistence and degradability

Persistence Insoluble in water, Persistence is unlikely, based on information available.

Component	Degradability
N,N-Dimethylformamide 68-12-2 (1-5)	100 % (OECD 301E (21d))

12.3. Bioaccumulative potential

May have some potential to bioaccumulate

Component	log Pow	Bioconcentration factor (BCF)
N,N-Dimethylformamide	-1.028	0.3 - 1.2 L/kg

12.4. Mobility in soil

Spillage unlikely to penetrate soil The product is insoluble and sinks in water The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its volatility.

12.5. Results of PBT and vPvB assessment

No data available for assessment.

12.6. Endocrine disrupting properties

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated
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		Substances
N,N-Dimethylformamide	Group III Chemical	

12.7. Other adverse effects

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Ozone Depletion Potential

This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC)

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains.

Switzerland - Waste Ordinance

Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600
<https://www.fedlex.admin.ch/eli/cc/2015/891/en>

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number

UN1993

14.2. UN proper shipping name

Flammable liquid, n.o.s.

14.3. Transport hazard class(es)

3

14.4. Packing group

III

ADR

14.1. UN number

UN1993

14.2. UN proper shipping name

Flammable liquid, n.o.s.

14.3. Transport hazard class(es)

3

14.4. Packing group

III

IATA

14.1. UN number

UN1993

14.2. UN proper shipping name

Flammable liquid, n.o.s.

14.3. Transport hazard class(es)

3

14.4. Packing group

III

14.5. Environmental hazards

No hazards identified

14.6. Special precautions for user

No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable, packaged goods

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SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
3-Chlorothiophene	17249-80-8	-	-	-	X	X	-	-	-
N,N-Dimethylformamide	68-12-2	200-679-5	-	-	X	X	KE-11411	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
3-Chlorothiophene	17249-80-8	-	-	-	-	-	-	-
N,N-Dimethylformamide	68-12-2	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
3-Chlorothiophene	17249-80-8	-	-	-
N,N-Dimethylformamide	68-12-2	-	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 75. (see link for restriction details) Use restricted. See item 76. (see link for restriction details)	SVHC Candidate list - (Toxic to Reproduction, Article 57c)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

REACH links

<https://echa.europa.eu/authorisation-list>

<https://echa.europa.eu/substances-restricted-under-reach>

<https://echa.europa.eu/candidate-list-table>

Seveso III Directive (2012/18/EC)

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
3-Chlorothiophene	17249-80-8	Not applicable	Not applicable
N,N-Dimethylformamide	68-12-2	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

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3-Chlorothiophene

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Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
N,N-Dimethylformamide	WGK 2	

Component	France - INRS (Tables of occupational diseases)
N,N-Dimethylformamide	Tableaux des maladies professionnelles (TMP) - RG 84

Swiss Regulations

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H226 - Flammable liquid and vapor

H302 - Harmful if swallowed

H315 - Causes skin irritation

H318 - Causes serious eye damage

H360D - May damage the unborn child

H335 - May cause respiratory irritation

H312 - Harmful in contact with skin

H319 - Causes serious eye irritation

H332 - Harmful if inhaled

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

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3-Chlorothiophene

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PBT - Persistent, Bioaccumulative, Toxic

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (volatile organic compound)

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards On basis of test data

Health Hazards Calculation method

Environmental hazards Calculation method

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Prepared By Health, Safety and Environmental Department

Creation Date 14-Mar-2012

Revision Date 04-Feb-2024

Revision Summary New emergency telephone response service provider.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 .

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

Disclaimer

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End of Safety Data Sheet