Safety Data Sheet

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

Revision Date 2025-01-17 **Revision Number** 13

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product Code S5033

Product Name X-Gal

Pure substance/mixture Mixture
Contains N,N-Dimethylformamide

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

Identified uses For research use only. Not for use in diagnostic procedures

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Supplier
USA:
Takara Bio USA, Inc.
2560 Orchard Parkway
San Jose, CA 95131, USA
Phone: 800.662.2566/888.251.6618
Web: www.takarabio.com

Europe:
Takara Bio Europe S.A.S.
34, Rue de la Croix de Fer
78100 Saint-Germain-en-Laye, France
Phone: +33.1.39.04.68.80
Web: www.takarabio.com

Europe:
Takara Bio Europe AB
Arvid Wallgrens Backe 20,
SE-413 46 Göteborg, Sweden
Phone: +46.31.758.09.00
Web: www.takarabio.com

India:
DSS Takara Bio India Pvt. Ltd.
A-5 Mohan Co-operative Industrial Estate, Mathura Road,
New Delhi 110044, India
Phone: +91.1800.212.4922 (Toll free)
Web: www.takarabio.com

For further information, please contact:

1.4. Emergency telephone number

Emergency telephone In case of emergency, call PERS (Professional Emergency Resource Services)
1-800-633-8253 (US) or 801-629-0667 (international).

Italy	Marco Marano CAV “Osp. Pediatrico Bambino Gesù” Dip. Emergenza e Accettazione DEA Roma, Piazza Sant'Onofrio,4 00165 0668593726

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to
Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity - Dermal	Category 4 - (H312)
Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Serious eye damage/eye irritation	Category 2 - (H319)
Reproductive toxicity	Category 1B - (H360D)
Flammable liquids	Category 3 - (H226)

2.2. Label elements

Contains N,N-Dimethylformamide

Signal word
Danger

Hazard statements
H312 - Harmful in contact with skin
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H360D - May damage the unborn child
H226 - Flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)
P201 - Obtain special instructions before use
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P280 - Wear protective gloves, protective clothing, eye protection and face protection
P321 - Specific treatment (see supplemental first aid instructions on this label)
P370 + P378 - In case of fire: Use dry chemical, CO2, water spray or alcohol-resistant foam to extinguish
P403 + P235 - Store in a well-ventilated place. Keep cool
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

Additional information
This product requires tactile warnings if supplied to the general public.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	Weight-%	REACH registration number	EC No (EU Index No)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
N,N-Dimethylformamide 68-12-2	90 - 100	No data available	200-679-5 (616-001-00-X)	Acute Tox. 4 (H312) Eye Irrit. 2 (H319) Acute Tox. 4 (H332) Repr. 1B (H360D)	-	-	-

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate
If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
N,N-Dimethylformamide 68-12-2	2800	1100	5.85	No data available	No data available

This product contains one or more candidate substance(s) of very high concern (Regulation (EC) No. 1907/2006 (REACH), Article 59)

Chemical name	CAS No.	SVHC candidates
N,N-Dimethylformamide	68-12-2	X

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation Remove to fresh air. If symptoms persist, call a physician. If breathing has stopped, give artificial respiration. Get medical attention immediately.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.

Ingestion Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get medical attention.

Self-protection of the first aider Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Avoid breathing vapors or mists.

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

Symptoms May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.

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

Note to physicians Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Dry chemical. Carbon dioxide (CO2). Water spray. Alcohol resistant foam.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Avoid breathing vapors or mists.

Other information Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Use personal protection equipment. Avoid breathing vapors or mists. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use with local exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. In case of insufficient ventilation, wear suitable respiratory equipment.

General hygiene considerations

Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store locked up. Keep out of the reach of children.

7.3. Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
N,N-Dimethylformamide 68-12-2	TWA: 15 mg/m³ TWA: 5 ppm STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL 10 ppm STEL 30 mg/m³ Sk*	TWA: 2 ppm TWA: 6 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
N,N-Dimethylformamide 68-12-2	TWA: 15 mg/m³ TWA: 5 ppm STEL: 30 mg/m³ STEL: 10 ppm Sk*	TWA: 15 mg/m³ Sk* Ceiling: 30 mg/m³	TWA: 5 ppm TWA: 15 mg/m³ STEL: 30 mg/m³ STEL: 10 ppm Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ : 2 ppm : 6 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
N,N-Dimethylformamide 68-12-2	TWA: 5 ppm TWA: 15 mg/m³ STEL: 30 mg/m³ STEL: 10 ppm Sk*	TWA: 5 ppm TWA: 15 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ Peak: 10 ppm Peak: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*

Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
N,N-Dimethylformamide 68-12-2	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ Sk*	-	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*

Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
N,N-Dimethylformamide 68-12-2	TWA: 15 mg/m³ TWA: 5 ppm STEL: 30 mg/m³ STEL: 10 ppm Sk*	TWA: 15 mg/m³ TWA: 5 ppm STEL: 30 mg/m³ STEL: 10 ppm Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 6 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 15 mg/m³ STEL: 30 mg/m³ Sk*

Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
N,N-Dimethylformamide 68-12-2	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Ceiling: 30 mg/m³	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*

Chemical name	Sweden	Switzerland	United Kingdom
N,N-Dimethylformamide 68-12-2	NGV: 2 ppm NGV: 6 mg/m³ Bindande KGV: 10 ppm Bindande KGV: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*	TWA: 5 ppm TWA: 15 mg/m³ STEL: 10 ppm STEL: 30 mg/m³ Sk*

Biological occupational exposure limits

Chemical name	European Union	Austria	Bulgaria	Croatia	Czech Republic
N,N-Dimethylformamide 68-12-2	-	<=50 U/l - (Serum transaminases SGOT) - not provided <=35 U/l - (Serum transaminases SGOT) - not provided <=50 U/l - (Serum transaminases SGPT) - not provided <=35 U/l - (Serum transaminases SGPT) - not provided <=66 U/l - (Serum transaminases GGT) - not provided <=39 U/l - (Serum transaminases GGT) - not provided	-	1.50 mg/L - blood (N,N-Dimethylformamide) - at the end of exposure for 4 hours 12 mg/g Creatinine - urine (N-Methylformamide) - at the end of the work shift 1.0 mg/L - blood (N-Methylformamide) - at the end of the work shift	0.029 mmol/mmol Creatinine (urine - N-Methylformamide end of shift) 15 mg/g Creatinine (urine - N-Methylformamide end of shift)

Chemical name	Denmark	Finland	France	Germany DFG	Germany TRGS
N,N-Dimethylformamide 68-12-2	-	-	40 mg/g creatinine - urine (total N-Methylformamide) - end of shift	20 mg/L (urine - N,N-Methylformamide plus N-Hydroxymethyl-N-methylformamide end of shift) 25 mg/g Creatinine (urine -	20 mg/L (urine - N,N-Methylformamide plus N-Hydroxymethyl-N-methylformamide end of shift) 25 mg/g Creatinine (urine -

				N-Acetyl-S-(methylcarbamoyl)-L-cystein end of shift) 25 mg/g Creatinine (urine - N-Acetyl-S-(methylcarbamoyl)-L-cystein for long-term exposures: at the end of the shift after several shifts) 20 mg/L - BAT (end of exposure or end of shift) urine 25 mg/g Creatinine - BAT (for long-term exposures: at the end of the shift after several shifts) urine	N-Acetyl-S-(methylcarbamoyl)-L-cystein end of shift) 25 mg/g Creatinine (urine - N-Acetyl-S-(methylcarbamoyl)-L-cystein for long-term exposures: at the end of the shift after several shifts)

Chemical name	Hungary	Ireland	Italy MDLPS	Italy AIDII
N,N-Dimethylformamide 68-12-2	15 mg/L (urine - N-Methylformamide end of shift) 254 µmol/L (urine - N-Methylformamide end of shift)	15 mg/L (urine - N-Methylformamide post shift)	-	30 mg/L - urine (N-Methylformamide) - end of shift 30 mg/L - urine (N-Acetyl-S-(N-methylcarbamoyl) cysteine) - end of shift at end of workweek

Chemical name	Latvia	Luxembourg	Romania	Slovakia
N,N-Dimethylformamide 68-12-2	-	-	15 mg/L - urine (Methyl-formamide) - end of shift	35 mg/L (urine - N-Methylformamide end of exposure or work shift)

Chemical name	Slovenia	Spain	Switzerland	United Kingdom
N,N-Dimethylformamide 68-12-2	20 mg/L - urine (N-Methylformamide and N-Hydroxymethyl-N-methylformamide) - at the end of the work shift 25 mg/g Creatinine - urine (N-Acetyl-S-(methylcarbamoyl)-methylformamide) - at the end of the work shift; in case of prolonged exposure, at the end of the work shift after several consecutive working hours	40 mg/L (urine - N-Acetyl-S-(N-methylcarbamoyl) cysteine start of last shift of workweek) 15 mg/L (urine - N-Methylformamide end of shift)	20 mg/L (urine - N-Methylformamide and N-hydroxymethyl-N-methylformamide end of shift) 25 mg/g creatinine (urine - N-Acetyl-S-(methyl-carbamoyl)-L-cysteine end of shift, and after several shifts (for long-term exposures))	-

Derived No Effect Level (DNEL) No information available.
Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Personal Protective Equipment

Eye/face protection Tight sealing safety goggles.

Hand protection Wear suitable gloves. Impervious gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

Antistatic boots.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

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	Clear, colorless
Color	Colorless
Odor	Mild amine
Odor Threshold	No information available

Property	**Values**	**Remarks • Method**
Melting point / freezing point	No data available	None known
Boiling point/boiling range (°C)	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Flash point	58 °C	Open cup
Autoignition temperature	No data available	None known
Decomposition temperature		None known
pH	No data available	None known
pH (as aqueous solution)	No data available	No information available
Kinematic viscosity	No data available	None known
Dynamic Viscosity	No data available	None known
Water solubility	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Vapor pressure	No data available	None known
Relative density	No data available	None known
Bulk Density	No data available	
Liquid Density	No data available	
Vapor density	No data available	None known
Particle characteristics		
Particle Size	No information available	
Particle Size Distribution	No information available	

9.2. Other information

9.2.1. Information with regard to physical hazard classes
Not applicable

9.2.2. Other safety characteristics
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion Data
Sensitivity to mechanical impact None.
Sensitivity to static discharge Yes.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Heat, flames and sparks. Excessive heat.

10.5. Incompatible materials

Incompatible materials None known based on information supplied.

10.6. Hazardous decomposition products

Hazardous Decomposition Products None known based on information supplied.

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Harmful by inhalation. (based on components).

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Skin contact Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation. May be absorbed through the skin in harmful amounts. Harmful in contact with skin. (based on components).

Ingestion Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms May cause redness and tearing of the eyes. Coughing and/ or wheezing.

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	2,857.10 mg/kg
ATEmix (dermal)	1,122.40 mg/kg
ATEmix (inhalation-dust/mist)	1.53 mg/l

Unknown acute toxicity

2 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.
2 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
N,N-Dimethylformamide	= 2800 mg/kg (Rat)	= 1100 mg/kg (Rat)	> 5.85 mg/L (Rat) 4 h

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

Skin corrosion/irritation May cause skin irritation.

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name	European Union
N,N-Dimethylformamide	Repr. 1B

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

Unknown aquatic toxicity Contains 0 % of components with unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
N,N-Dimethylformamide	EC50: >500mg/L (96h, Desmodesmus subspicatus)	LC50: =6300mg/L (96h, Lepomis macrochirus) LC50: =9800mg/L (96h, Oncorhynchus mykiss) LC50: =10410mg/L (96h, Pimephales promelas)	-	EC50: =7500mg/L (48h, Daphnia magna) EC50: =8485mg/L (48h, Daphnia magna) EC50: 6800 - 13900mg/L (48h, Daphnia magna)

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
N,N-Dimethylformamide	-1.028

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment No information available.

Chemical name	PBT and vPvB assessment
N,N-Dimethylformamide	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number UN1993
14.2 UN proper shipping name Flammable liquid, n.o.s. (N,N-Dimethylformamide)
14.3 Transport hazard class(es) 3

14.4 Packing group III
Description UN1993, Flammable liquid, n.o.s. (N,N-Dimethylformamide), 3, III
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions A3
ERG Code 3L

IMDG
14.1 UN number or ID number UN1993
14.2 UN proper shipping name Flammable liquid, n.o.s. (N,N-Dimethylformamide)
14.3 Transport hazard class(es) 3
14.4 Packing group III
Description UN1993, Flammable liquid, n.o.s., 3, III, (58°C c.c.)
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions 223, 274, 955
F-E, S-E
14.7 Maritime transport in bulk according to IMO instruments No information available

RID
14.1 UN number or ID number UN1993
14.2 UN proper shipping name Flammable liquid, n.o.s. (N,N-Dimethylformamide)
14.3 Transport hazard class(es) 3
14.4 Packing group III
Description UN1993, Flammable liquid, n.o.s. (N,N-Dimethylformamide), 3, III
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions 274, 601
Classification code F1

ADR
14.1 UN number or ID number UN1993
14.2 UN proper shipping name Flammable liquid, n.o.s. (N,N-Dimethylformamide)
14.3 Transport hazard class(es) 3
14.4 Packing group III
Description UN1993, Flammable liquid, n.o.s. (N,N-Dimethylformamide), 3, III, (D/E)
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions 274, 601
Classification code F1
Tunnel restriction code (D/E)

SECTION 15: Regulatory information

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

National regulations

France
Occupational Illnesses (R-463-3, France)

Chemical name	French RG number	Title
N,N-Dimethylformamide 68-12-2	RG 84	-

Netherlands

Chemical name	Netherlands - List of Carcinogens	Netherlands - List of Mutagens	Netherlands - List of Reproductive Toxins
N,N-Dimethylformamide	-	-	Development Category 1B

European Union

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.

Authorizations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorization per REACH Annex XIV
N,N-Dimethylformamide - 68-12-2	72 30 75 76	-

Persistent Organic Pollutants

Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU)

P5a - FLAMMABLE LIQUIDS
P5b - FLAMMABLE LIQUIDS
P5c - FLAMMABLE LIQUIDS

Ozone-depleting substances (ODS) Regulation (EU) 2024/590

Not applicable

International Inventories

TSCA	-
DSL/NDSL	-
EINECS/ELINCS	-
ENCS	-
IECSC	-
KECI	-
PICCS	-
AICS	-

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing Chemicals Inventory
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

Chemical Safety Assessment No information available

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of any hazard and/or precautionary statements referred to under Sections 2-15
H312 - Harmful in contact with skin
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H360D - May damage the unborn child

Legend
SVHC: Substances of Very High Concern for Authorization:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	Time weighted average	STEL	Short term exposure limit
Ceiling	Maximum limit value	*	Skin designation
**	Hazard Designation	+	Sensitizers

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitization	Calculation method
Skin sensitization	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

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End of Safety Data Sheet