Safety Data Sheet

25 Mix solvent residue in N,N-Dimethylformamide

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Report No.：BWQ0351-2016-MSDS-US
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*Prepared according to American OSHA HCS-2024 (29 CFR 1910.1200)

1 Identification

Product identifier

Product Name	25 Mix solvent residue in N,N-Dimethylformamide
Cat No.	BWQ0351-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

Emergency phone number

Emergency phone number	010-58103678

2 Hazard(s) identification

Hazard classification according to 29 CFR 1910.1200

Flammable liquids	Category 3
Acute Toxicity - Dermal	Category 4
Serious eye damage/irritation	Category 2
Acute Toxicity - Inhalation	Category 4
Reproductive Toxicity	Category 1B

Label elements

Hazard pictograms	
Signal word	**Danger**

Hazard statements

H226	Flammable liquid and vapour
H312	Harmful in contact with skin
H319	Causes serious eye irritation
H332	Harmful if inhaled
H360	May damage fertility and the unborn child

Precautionary statements

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P261	Avoid breathing gas/mist/vapour/spray.
P264	Wash hands and other parts of the body (if related) thoroughly after handling.
P271	Use only outdoors or with adequate ventilation.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Response

P321	Specific treatment (see related instructions on the label).
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P362+P364	Take off contaminated clothing and wash it before reuse.
P370+P378	Small fire: dry chemical, CO_2 or alcohol-resistant foam; Large fire: alcohol-resistant foam; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or 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.

Storage

P405	Store locked up.
P403+P235	Store in a well-ventilated place. Keep cool.

◆ Disposal

P501	Dispose of contents/container in accordance with local/regional/national/ international regulations.

Other hazards

	Not applicable.

Hazard description

◆ Physical and chemical hazards

	Flammable liquids, its vapor and air mixture can form explosive mixture.

◆ Health hazards

Inhaled	Abdominal pain. Diarrhoea. Nausea. Vomiting. Facial flushing.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	MAY BE ABSORBED!
Eye	Redness. Pain.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Mixture

Component	CAS No.	EC No.	Concentration (wt, %)
N,N-dimethylformamide	68-12-2	200-679-5	99.75
Cyclohexane	110-82-7	203-806-2	0.01
Methylcyclohexane	108-87-2	203-624-3	0.01
Acetone	67-64-1	200-662-2	0.01
Ethyl acetate	141-78-6	205-500-4	0.01
Methanol	67-56-1	200-659-6	0.01
Isopropyl acetate	108-21-4	203-561-1	0.01
Butanone	78-93-3	201-159-0	0.01
Propan-2-ol	67-63-0	200-661-7	0.01
Ethanol	64-17-5	200-578-6	0.01
Propyl acetate	109-60-4	203-686-1	0.01
4-methylpentan-2-one	108-10-1	203-550-1	0.01
Propan-1-ol	71-23-8	200-746-9	0.01
N-butyl acetate	123-86-4	204-658-1	0.01
2-methylpropan-1-ol	78-83-1	201-148-0	0.01
Butan-1-ol	71-36-3	200-751-6	0.01
2-methoxyethyl acetate	110-49-6	203-772-9	0.01

2-methoxy-1-methylethyl acetate	108-65-6	203-603-9	0.01
1-Methoxy-2-propanol	107-98-2	203-539-1	0.01
1-ethoxypropan-2-ol	1569-02-4	216-374-5	0.01
Benzene	71-43-2	200-753-7	0.01
Toluene	108-88-3	203-625-9	0.01
Ethylbenzene	100-41-4	202-849-4	0.01
o-xylene	95-47-6	202-422-2	0.01
m-xylene	108-38-3	203-576-3	0.01
p-xylene	106-42-3	203-396-5	0.01

4 First-aid measures

Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
Skin contact	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
Ingestion	Rinse mouth.
Inhalation	Fresh air, rest. Refer for medical attention.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Small fire: dry chemical, CO_2 or alcohol-resistant foam; Large fire: alcohol-resistant foam; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.
Unsuitable extinguishing media	Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the substance or mixture

1	Will form explosive mixtures with air.
2	Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/or vapour concentration.
3	Vapours may travel to source of ignition and flash back.

4	Liquid and vapour are flammable.
5	Development of hazardous combustion gases or vapor possible in the event of fire.
6	May expansion or decompose explosively when heated or involved in fire.

Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Avoid breathing vapours and contacting with skin and eye.
2	Beware of vapours accumulating to form explosive concentrations.
3	Vapours can accumulate in low areas.
4	Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.
5	Use personal protective equipment,do not breathe gas/mist/vapour/spray.
6	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
7	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

1	It is recommended that emergency personnel wear positive pressure self-contained breathing apparatus and wear anti-static clothing.
2	In case of small amount of spillage, use clean non sparking tools to collect absorption materials.
3	In case of large amount of spillage, construct cofferdam or dig a hole to collect the spillage. Use foam cover to reduce evaporation. Water spray mist can reduce evaporation, but can not reduce the flammability of the leakage in the restricted space.
4	Collect absorbent material using a clean, non-sparking tool.
5	Cover with anti-solvent foam to reduce evaporation.
6	Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
7	Water spray reduces evaporation but does not reduce the flammability of spills in confined spaces.
8	Cut off the source of the leak as much as possible.
9	Keep leaks in a ventilated place.
10	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
11	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
12	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container.
13	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7 Handling and storage

Precautions for safe handling

1	Avoid inhalation of vapors.
2	Use only non-sparking tools.
3	To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
4	Use explosion proof equipment.
5	Handling is performed in a well ventilated place.
6	Wear suitable protective equipment.
7	Avoid contact with skin and eyes.
8	Keep away from heat/sparks/open flames/ hot surfaces.

Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

8 Exposure controls/personal protection

Control parameters

◆Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m³	ppm	mg/m³
N,N-dimethylformamide	Japan - JSOH(2024–2025)	10	30	-	-
	Permissible exposure standards for workers in the workplace	10	30	15	45
	Australia	10	30	-	-
	Canada - Ontario	10	-	-	-
	New Zealand	5	15	-	-
	USA - ACGIH	5	-	-	-
Cyclohexane	Japan - JSOH(2024–2025)	150	520	-	-
	Permissible exposure standards for workers in the workplace	300	1030	375	1030
	Australia	100	350	300	1050
	Canada - Ontario	100	-	-	-
	European Union	200	700	-	-

	New Zealand	100	350	300	1050
Methylcyclohexane	Japan - JSOH(2024–2025)	400	1600	-	-
	Permissible exposure standards for workers in the workplace	400	1610	500	1610
	Australia	400	1610	-	-
	Canada - Ontario	400	-	-	-
	New Zealand	400	1610	-	-
	USA - ACGIH	100	-	-	-
Acetone	Japan - JSOH(2024–2025)	200	475	-	-
	Permissible exposure standards for workers in the workplace	200	475	250	593.75
	Australia	500	1185	1000	2375
	Canada - Ontario	250	-	500	-
	European Union	500	1210	-	-
	New Zealand	500	1185	1000	2375
Ethyl acetate	Japan - JSOH(2024–2025)	200	720	-	-
	Permissible exposure standards for workers in the workplace	400	1440	500	1440
	Australia	200	720	400	1440
	Canada - Ontario	400	-	-	-
	European Union	200	734	400	1468
	New Zealand	200	720	-	-
Methanol	Japan - JSOH(2024–2025)	200	260	-	-
	Permissible exposure standards for workers in the workplace	200	262	250	327.5
	Australia	200	262	250	328
	Canada - Ontario	200	-	250	-
	European Union	200	260	-	-
	New Zealand	200	262	250	328

Isopropyl acetate	Japan - JSOH(2024–2025)	100	-	-	-
	Permissible exposure standards for workers in the workplace	250	1040	312.5	1040
	Australia	250	1040	310	1290
	Canada - Ontario	100	-	200	-
	New Zealand	250	1040	310	1290
	USA - ACGIH	100	-	150	-
Butanone	Japan - JSOH(2024–2025)	75	221	-	-
	Permissible exposure standards for workers in the workplace	200	590	250	737.5
	Australia	150	445	300	890
	Canada - Ontario	200	-	300	-
	European Union	200	600	300	900
	New Zealand	150	445	300	890
Propan-2-ol	Japan - JSOH(2024–2025)	-	-	-	-
	Permissible exposure standards for workers in the workplace	400	983	500	1228.75
	Australia	400	983	500	1230
	Canada - Ontario	200	-	400	-
	New Zealand	400	983	500	1230
	USA - ACGIH	200	-	400	-
Ethanol	Permissible exposure standards for workers in the workplace	1000	1880	1000	1880
	Australia	1000	1880	-	-
	Canada - Ontario	-	-	1000	-
	New Zealand	1000	1880	-	-
	USA - ACGIH	-	-	1000	-
	USA - NIOSH	1000	1900	-	-
Propyl acetate	Japan - JSOH(2024–2025)	200	830	-	-

	Permissible exposure standards for workers in the workplace	200	835	250	1043.75
	Australia	200	835	250	1040
	Canada - Ontario	200	-	250	-
	New Zealand	200	835	250	1040
	USA - ACGIH	100	-	150	-
4-methylpentan-2-one	Japan - JSOH(2024–2025)	20	82	-	-
	Permissible exposure standards for workers in the workplace	50	205	75	256.25
	Australia	50	205	75	307
	Canada - Ontario	20	-	75	-
	European Union	20	83	50	208
	New Zealand	50	205	75	307
Propan-1-ol	Permissible exposure standards for workers in the workplace	200	491	250	613.75
	Australia	200	492	250	614
	Canada - Ontario	100	-	-	-
	New Zealand	200	492	250	614
	USA - ACGIH	100	-	-	-
	USA - NIOSH	200	500	250	625
N-butyl acetate	Japan - JSOH(2024–2025)	100	475	-	-
	Permissible exposure standards for workers in the workplace	150	712	187.5	890
	Australia	150	713	200	950
	Canada - Ontario	150	-	200	-
	European Union	50	241	150	723
	New Zealand	150	713	200	950
2-methylpropan-1-ol	Japan - JSOH(2024–2025)	50	150	-	-
	Permissible exposure standards for	50	152	75	190

	workers in the workplace				
	Canada - Ontario	50	-	-	-
	New Zealand	50	152	-	-
	USA - ACGIH	50	-	-	-
	USA - NIOSH	50	150	-	-
Butan-1-ol	Japan - JSOH(2024–2025)	-	-	-	-
	Permissible exposure standards for workers in the workplace	100	303	125	378.75
	Australia	-	-	50	152
	Canada - Ontario	20	-	-	-
	New Zealand	-	-	50	150
	USA - ACGIH	20	-	-	-
2-methoxyethyl acetate	Japan - JSOH(2024–2025)	0.1	0.48	-	-
	Permissible exposure standards for workers in the workplace	5	24	10	36
	Australia	5	24	-	-
	Canada - Ontario	0.1	-	-	-
	European Union	1	-	-	-
	New Zealand	0.1	0.5	-	-
2-methoxy-1-methylethyl acetate	Australia	50	274	100	548
	Canada - Ontario	50	270	-	-
	European Union	50	275	100	550
	Austria	50	275	100	550
	Belgium	50	275	100	550
	Denmark	50	275	100	550
1-Methoxy-2-propanol	Permissible exposure standards for workers in the workplace	100	369	125	461.25
	Australia	100	369	150	553
	Canada - Ontario	100	-	150	-
	European Union	100	375	150	568
	New Zealand	100	369	150	553
	USA - ACGIH	50	-	100	-

1-ethoxypropan-2-ol	USA - ACGIH	50	-	200	-
	Denmark	100(provisional)	-	-	-
	Germany (AGS)	20	86	40	172
	Germany (DFG)	20	86	40	172
	Switzerland	50	220	100	440
Benzene	Japan - JSOH(2024–2025)	1(individual excess lifetime risk of cancer 10^-3)	-	-	-
	Permissible exposure standards for workers in the workplace	1	3.2	2	6.4
	Australia	1	3.2	-	-
	Canada - Ontario	0.5	-	2.5	-
	European Union	0.2	0.66	-	-
	New Zealand	0.05	0.16	-	-
Toluene	Japan - JSOH(2024–2025)	50	188	-	-
	Permissible exposure standards for workers in the workplace	50	188	75	235
	Australia	50	191	150	574
	Canada - Ontario	20	-	-	-
	European Union	50	192	100	384
	New Zealand	20	75	100	377
Ethylbenzene	Japan - JSOH(2024–2025)	20	87	-	-
	Permissible exposure standards for workers in the workplace	100	434	125	542.5
	Australia	100	434	125	543
	Canada - Ontario	20	-	-	-
	European Union	100	442	200	884
	New Zealand	20	88	40	176
o-xylene	Permissible exposure standards for workers in the workplace	100	434	125	542.5
	Australia	80	350	150	655

	Canada - Ontario	100	-	150	-
	European Union	50	221	100	442
	New Zealand	50	217	-	-
	USA - ACGIH	20	-	-	-
m-xylene	Permissible exposure standards for workers in the workplace	100	434	125	542.5
	Australia	80	350	150	655
	Canada - Ontario	100	-	150	-
	European Union	50	221	100	442
	New Zealand	50	217	-	-
	USA - ACGIH	20	-	-	-
p-xylene	Permissible exposure standards for workers in the workplace	100	434	125	542.5
	Australia	80	350	150	655
	Canada - Ontario	100	-	150	-
	European Union	50	221	100	442
	New Zealand	50	217	-	-
	USA - ACGIH	20	-	-	-

Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

Personal protection equipment

General requirement	
Eye protection	Must wear appropriate safety goggles.
Hand protection	Must wear anti static chemical protective gloves.
Respiratory protection	Must wear appropriate personal respiratory protective equipment.
Skin and body protection	Must wear anti static chemical protective clothing and anti static shoes.

9 Physical and chemical properties and safety characteristics

Physical and chemical properties

Appearance (physical state, color, etc.)	Clear, colorless liquid

Odor	No information available
Odor threshold	No information available
pH	< 7 (Acidic) (N,N-dimethylformamide)
Melting point/freezing point(°C)	-61 (N,N-dimethylformamide)
Initial boiling point and boiling range(°C)	153 (N,N-dimethylformamide)
Flash point(Closed cup,°C)	58 (N,N-dimethylformamide)
Evaporation rate	No information available
Flammability	No information available
Upper/lower explosive limits[%(v/v)]	Upper limit : No information available ; Lower limit : No information available
Vapor pressure	490Pa (25°C,N,N-dimethylformamide)
Vapor density(Air = 1)	2.5 (N,N-dimethylformamide)
Relative density(Water=1)	0.94 (20 °C,N,N-dimethylformamide)
Solubility	1000g/L (20 °C,N,N-dimethylformamide)
n-octanol/water partition coefficient	-0.87 (N,N-dimethylformamide)
Auto-ignition temperature(°C)	440 (N,N-dimethylformamide)
Decomposition temperature(°C)	No information available
Kinematic viscosity	0.85 mm²/s (25°C,N,N-dimethylformamide)

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	Hydrolyzes into acids and amine(ammonia) if catalyzed by acids or alkalis. In contact with an open flame may cause a fire or explosion. In contact with oxidants may cause a fire or an explosion. In contact with metal alkoxides may cause a fire. In contact with oxidants causes severe reactions, and may cause a fire or explosion. In contact with halides may cause an active reaction.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Acids, alkalis, oxidants, ammonia, isocyanate, phenol and cresol. Oxidantss and halogen. Oxidants, chloroform and bromoformMetal alkyl oxide, metal hydride, inorganic peroxide, nitrate and halogens oxyacid salts. Oxidants, alkali metals, alkaline earth metals and aluminum. Halides, oxidants and halogen.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Component	LD_{50}(oral)	LD_{50}(dermal)	LC_{50}(inhalation,4h)
Isopropyl acetate	6750mg/kg(Rat)	> 17400mg/kg(Rabbit)	No information available
Ethylbenzene	3500mg/kg(Rat)	15400mg/kg(Rabbit)	No information available

Propyl acetate	9370mg/kg(Rat)	> 17800mg/kg(Rabbit)	No information available
1-Methoxy-2-propanol	11700mg/kg(Mouse)	13000mg/kg(Rabbit)	No information available
Methylcyclohexane	> 3200mg/kg(Rat)	No information available	No information available
Ethanol	7060mg/kg(Rat)	No information available	39mg/L(Mouse)
Cyclohexane	12705mg/kg(Rat)	No information available	No information available
Ethyl acetate	5620mg/kg(Rat)	> 18000mg/kg(Rabbit)	No information available
Toluene	636mg/kg(Rat)	12200mg/kg(Rabbit)	49mg/L(Rat)
Acetone	5800mg/kg(Rat)	> 15800mg/kg(Rabbit)	76mg/L(Rat)
2-methylpropan-1-ol	2460mg/kg(Rat)	3400mg/kg(Rabbit)	No information available
Propan-2-ol	5045mg/kg(Rat)	12800mg/kg(Rabbit)	No information available
2-methoxy-1-methylethyl acetate	8532mg/kg(Rat)	> 5000mg/kg(Rabbit)	No information available
1-ethoxypropan-2-ol	4400mg/kg(Rat)	8100mg/kg(Rabbit)	> 42.60mg/L(Rat)
m-xylene	5000mg/kg(Rat)	12200mg/kg(Rabbit)	No information available
Butanone	2737mg/kg(Rat)	6480mg/kg(Rabbit)	32mg/L(Mouse)
N-butyl acetate	10768mg/kg(Rat)	> 17600mg/kg(Rabbit)	No information available
Methanol	5628mg/kg(Rat)	15800mg/kg(Rabbit)	83.867mg/L(Rat)
Benzene	930mg/kg(Rat)	> 8260mg/kg(Rabbit)	No information available
Butan-1-ol	790mg/kg(Rat)	3400mg/kg(Rabbit)	24.252mg/L(Rat)
N,N-dimethylformamide	2800mg/kg(Rat)	4720mg/kg(Rabbit)	No information available
4-methylpentan-2-one	2080mg/kg(Rat)	No information available	11mg/L(Rat)
p-xylene	5000mg/kg(Rat)	No information available	19.758mg/L(Rat)
2-methoxyethyl acetate	2900mg/kg(Rat)	5300mg/kg(Rabbit)	No information available
Propan-1-ol	1870mg/kg(Rat)	5040mg/kg(Rabbit)	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP	OSHA Carcinogen List
N,N-dimethylformamide	Category 2A	Not Listed	Not Listed
Cyclohexane	Not Listed	Not Listed	Not Listed
Methylcyclohexane	Not Listed	Not Listed	Not Listed
Acetone	Not Listed	Not Listed	Not Listed
Ethyl acetate	Not Listed	Not Listed	Not Listed
Methanol	Not Listed	Not Listed	Not Listed
Isopropyl acetate	Not Listed	Not Listed	Not Listed
Butanone	Not Listed	Not Listed	Not Listed
Propan-2-ol	Category 3	Not Listed	Not Listed
Ethanol	Category 1(Remark 1)	Not Listed	Not Listed

Propyl acetate	Not Listed	Not Listed	Not Listed
4-methylpentan-2-one	Category 2B	Not Listed	Not Listed
Propan-1-ol	Not Listed	Not Listed	Not Listed
N-butyl acetate	Not Listed	Not Listed	Not Listed
2-methylpropan-1-ol	Not Listed	Not Listed	Not Listed
Butan-1-ol	Not Listed	Not Listed	Not Listed
2-methoxyethyl acetate	Not Listed	Not Listed	Not Listed
2-methoxy-1-methylethyl acetate	Not Listed	Not Listed	Not Listed
1-Methoxy-2-propanol	Not Listed	Not Listed	Not Listed
1-ethoxypropan-2-ol	Not Listed	Not Listed	Not Listed
Benzene	Category 1	Category K	Listed
Toluene	Category 3	Not Listed	Not Listed
Ethylbenzene	Category 2B	Not Listed	Not Listed
o-xylene	Not Listed	Not Listed	Not Listed
m-xylene	Not Listed	Not Listed	Not Listed
p-xylene	Not Listed	Not Listed	Not Listed

Remark 1: for alcoholic beverages only

Others

25 Mix solvent residue in N,N-Dimethylformamide	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Causes serious eye irritation(Category 2)
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	May damage fertility and the unborn child(Category 1B)
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met

12 Ecological information

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
Isopropyl acetate	LC_{50} :265mg/L (96h)(Fish)	No information available	No information available
Ethylbenzene	LC_{50} : 4.2mg/L (96h)(Fish)	EC_{50} : 4.75mg/L (48h)(Crustaceans)	ErC_{50} : 3.6mg/L (96h)(Algae)
Propyl acetate	LC_{50} : 60mg/L (96h)(Fish)	No information available	No information available
1-Methoxy-2-propanol	LC_{50} : 6812mg/L (96h)(Fish)	No information available	No information available

Methylcyclohexane	LC_{50}：2.1mg/L (96h)(Fish)	EC_{50}：0.33mg/L (48h)(Crustaceans)	ErC_{50}：0.34mg/L (72h)(Algae)
Ethanol	LC_{50}：11200mg/L (96h)(Fish)	EC_{50}：9950mg/L (48h)(Crustaceans)	No information available
Cyclohexane	LC_{50}：4.35mg/L (96h)(Fish)	No information available	No information available
Ethyl acetate	LC_{50}：230mg/L (96h)(Fish)	No information available	ErC_{50}：2500mg/L (96h)(Algae)
Toluene	LC_{50}：25mg/L (96h)(Fish)	EC_{50}：4.1mg/L (48h)(Crustaceans)	ErC_{50}：29mg/L (72h)(Algae)
Acetone	LC_{50}：5540mg/L (96h)(Fish)	EC_{50}：18500mg/L (48h)(Crustaceans)	ErC_{50}：7200mg/L (96h)(Algae)
2-methylpropan-1-ol	LC_{50}：1510mg/L (96h)(Fish)	EC_{50}：1200mg/L (48h)(Crustaceans)	No information available
Propan-2-ol	LC_{50}：9640mg/L (96h)(Fish)	EC_{50}：>1000mg/L (48h)(Crustaceans)	ErC_{50}：>1000mg/L (72h)(Algae)
2-methoxy-1-methylethyl acetate	LC_{50}：130mg/L (96h)(Fish)	EC_{50}：370mg/L (48h)(Crustaceans)	ErC_{50}：>1000mg/L (72h)(Algae)
m-xylene	LC_{50}：10.6mg/L (96h)(Fish)	EC_{50}：2.4mg/L (48h)(Crustaceans)	ErC_{50}：8.9mg/L (72h)(Algae)
Butanone	LC_{50}：3220mg/L (96h)(Fish)	EC_{50}：5090mg/L (48h)(Crustaceans)	ErC_{50}：>1200mg/L (72h)(Algae)
N-butyl acetate	LC_{50}：18mg/L (96h)(Fish)	No information available	No information available
Methanol	LC_{50}：24000mg/L (96h)(Fish)	EC_{50}：24500mg/L (48h)(Crustaceans)	No information available
Benzene	LC_{50}：21.6mg/L (96h)(Fish)	EC_{50}：10.9mg/L (48h)(Crustaceans)	ErC_{50}：1600mg/L (96h)(Algae)
Butan-1-ol	LC_{50}：>100mg/L (96h)(Fish)	EC_{50}：>1000mg/L (48h)(Crustaceans)	ErC_{50}：>1000mg/L (72h)(Algae)
N,N-dimethylformamide	LC_{50}：10500mg/L (96h)(Fish)	EC_{50}：>1000mg/L (48h)(Crustaceans)	ErC_{50}：>1000mg/L (72h)(Algae)
4-methylpentan-2-one	LC_{50}：179mg/L (96h)(Fish)	No information available	No information available
p-xylene	LC_{50}：5.5mg/L (96h)(Fish)	EC_{50}：6.9mg/L (48h)(Crustaceans)	ErC_{50}：9.6mg/L (72h)(Algae)
Propan-1-ol	LC_{50}：4555mg/L (96h)(Fish)	EC_{50}：4130mg/L (48h)(Crustaceans)	ErC_{50}：4480mg/L (96h)(Algae)
o-xylene	LC_{50}：16.1mg/L (96h)(Fish)	EC_{50}：1.1mg/L (48h)(Crustaceans)	ErC_{50}：0.80mg/L (72h)(Algae)

Chronic aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
2-methoxy-1-methylethyl acetate	No information available	NOEC：>100mg/L(Crustaceans)	NOEC：1000mg/L(Algae)
m-xylene	No information available	NOEC：0.41mg/L(Crustaceans)	NOEC：5.3mg/L(Algae)
Butanone	No information available	NOEC：100mg/L(Crustaceans)	NOEC：93mg/L(Algae)
Butan-1-ol	NOEC：46mg/L(Fish)	NOEC：4.1mg/L(Crustaceans)	NOEC：180mg/L(Algae)

N,N-dimethylformamide	NOEC：> 102mg/L(Fish)	NOEC：>1000mg/L(Crustaceans)	NOEC：1000mg/L(Algae)
Methylcyclohexane	No information available	No information available	NOEC：0.067mg/L(Algae)
Toluene	No information available	NOEC：1.2mg/L(Crustaceans)	NOEC：9.1mg/L(Algae)
p-xylene	No information available	NOEC：1.3mg/L(Crustaceans)	NOEC：4.4mg/L(Algae)
Propan-2-ol	NOEC：>100mg/L(Fish)	NOEC：>100mg/L(Crustaceans)	NOEC：1000mg/L(Algae)
o-xylene	No information available	NOEC：0.63mg/L(Crustaceans)	NOEC：0.73mg/L(Algae)

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Methanol	Low	Low
Butanone	Low(Half-life = 14 days)	Low(Half-life = 26.75 days)
Ethanol	Low(Half-life = 2.17 days)	Low(Half-life = 5.08 days)
Butan-1-ol	Low(Half-life = 54 days)	Low(Half-life = 3.65 days)
2-methoxy-1-methylethyl acetate	Low	Low
1-Methoxy-2-propanol	Low(Half-life = 56 days)	Low(Half-life = 1.7 days)
o-xylene	High(Half-life = 360 days)	Low(Half-life = 1.83 days)
m-xylene	High(Half-life = 360 days)	Low(Half-life = 1.08 days)
p-xylene	High(Half-life = 360 days)	Low(Half-life = 1.75 days)

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Methanol	Low	BCF=10
Butanone	Low	Log Kow=0.29
Ethanol	Low	Log Kow=-0.31
Butan-1-ol	Low	BCF=64
2-methoxy-1-methylethyl acetate	Low	Log Kow=0.56
1-Methoxy-2-propanol	Low	BCF=2
o-xylene	Low	BCF=219
m-xylene	Low	BCF=1.37
p-xylene	Low	BCF=2.2

Mobility in soil

Component	log Koc	Remark
N,N-dimethylformamide	0	

Cyclohexane	2.89	20 ℃
Methanol	0.000	
Butanone	0.654	25 ℃
Propan-2-ol	0.54	20 ℃
Ethanol	0	
Butan-1-ol	0.54	20 ℃
2-methoxy-1-methylethyl acetate	0.264	
1-Methoxy-2-propanol	0.000	
Benzene	2.13	20 ℃
Toluene	2.31	20 ℃
Ethylbenzene	3.12	20 ℃
o-xylene	2.73	20 ℃
m-xylene	2.73	20 ℃
p-xylene	2.73	20 ℃

13 Disposal considerations

Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Label and Mark

Transporting Label	

IMDG-CODE

UN number	1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S.
Transport hazard class	3
Transport subsidiary hazard class	None
Packing group	Ⅲ
Marine pollutant (Yes or no)	No

IATA-DGR

UN number	1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S.
Transport hazard class	3
Transport subsidiary hazard class	None
Packing group	Ⅲ

UN-ADR

UN number	1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S.
Transport hazard class	3
Transport subsidiary hazard class	None
Packing group	Ⅲ

Transport in bulk according to IMO instruments

◆Transport in bulk according to Annex Ⅱ of MARPOL and the IBC code

Not Available

◆Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Not Available

◆Transport in bulk in accordance with the IGC Code

Not Available

Others

Precautions for transport	Shipment of the goods vehicle exhaust pipe must be equipped with fire retardant devices, prohibit using mechanical equipment and tools of which easy to produce sparks. Transit should be anti-exposure, anti-rain, anti-high temperature. Transportation used tank (tank) cars should be grounded chain, tank can be installed to reduce the partition hole static electricity shocks. Strictly prohibited shipping or transportation with oxidants, acids, food and food additives etc. When bulk transport, Prohibit the use of cement or wooden boats. Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.

15 Regulatory information

International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
N,N-dimethylformamide	√	√	√	√	√	√	√	√	√	√	√	√	√
Cyclohexane	√	√	√	√	√	√	√	√	√	√	√	√	√
Methylcyclohexane	√	√	√	√	√	√	√	√	√	√	√	√	√
Acetone	√	√	√	√	√	√	√	√	√	√	√	√	√
Ethyl acetate	√	√	√	√	√	√	√	√	√	√	√	√	√

Methanol	√	√	√	√	√	√	√	√	√	√	√	√	√
Isopropyl acetate	√	√	√	√	√	√	√	√	√	√	√	√	√
Butanone	√	√	√	√	√	√	√	√	√	√	√	√	√
Propan-2-ol	√	√	√	√	√	√	√	√	√	√	√	√	√
Ethanol	√	√	√	√	√	√	√	√	√	√	√	√	√
Propyl acetate	√	√	√	√	√	√	√	√	√	√	√	√	√
4-methylpentan-2-one	√	√	√	√	√	√	√	√	√	√	√	√	√
Propan-1-ol	√	√	√	√	√	√	√	√	√	√	√	√	√
N-butyl acetate	√	√	√	√	√	√	√	√	√	√	√	√	√
2-methylpropan-1-ol	√	√	√	√	√	√	√	√	√	√	√	√	√
Butan-1-ol	√	√	√	√	√	√	√	√	√	√	√	√	√
2-methoxyethyl acetate	√	√	√	√	√	√	√	√	√	√	√	√	√
2-methoxy-1-methylethyl acetate	√	√	√	√	√	√	√	√	√	√	√	√	√
1-Methoxy-2-propanol	√	√	√	√	√	√	√	√	√	√	√	√	√
1-ethoxypropan-2-ol	√	√	×	√	√	√	√	√	√	√	×	√	√
Benzene	√	√	√	√	√	√	√	√	√	√	√	√	√
Toluene	√	√	√	√	√	√	√	√	√	√	√	√	√
Ethylbenzene	√	√	√	√	√	√	√	√	√	√	√	√	√
o-xylene	√	√	√	√	√	√	√	√	√	√	√	√	√
m-xylene	√	√	√	√	√	√	√	√	√	√	√	√	√
p-xylene	√	√	√	√	√	√	√	√	√	√	√	√	√

【A】 China Inventory of Existing Chemical Substances(IECSC)
【B】 European Inventory of Existing Commercial Chemical Substances(EC inventory)
【C】 United States Toxic Substances Control Act Inventory(TSCA)
【D】 Canadian Domestic Substances List(DSL)
【E】 New Zealand Inventory of Chemicals(NZIoC)
【F】 Philippines Inventory of Chemicals and Chemical Substances(PICCS)
【G】 Korea Existing Chemicals Inventory(KECL)
【H】 Australian. Inventory of Industrial Chemical (AIICS)
【I】 Japan Inventory of Existing & New Chemical Substances(ENCS)
【J】 Thailand Existing Chemicals Inventory(TECI)
【K】 Mexico National Inventory of Chemical Substances (INSQ)
【L】 Russia Inventory of Existing Substances (DRAFT)
【M】 Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

List of Chemical Substances under International Conventions

Component	A	B	C
N,N-dimethylformamide	×	×	×
Cyclohexane	×	×	×
Methylcyclohexane	×	×	×
Acetone	×	×	×

Ethyl acetate	×	×	×
Methanol	×	×	×
Isopropyl acetate	×	×	×
Butanone	×	×	×
Propan-2-ol	×	×	×
Ethanol	×	×	×
Propyl acetate	×	×	×
4-methylpentan-2-one	×	×	×
Propan-1-ol	×	×	×
N-butyl acetate	×	×	×
2-methylpropan-1-ol	×	×	×
Butan-1-ol	×	×	×
2-methoxyethyl acetate	×	×	×
2-methoxy-1-methylethyl acetate	×	×	×
1-Methoxy-2-propanol	×	×	×
1-ethoxypropan-2-ol	×	×	×
Benzene	×	×	×
Toluene	×	×	×
Ethylbenzene	×	×	×
o-xylene	×	×	×
m-xylene	×	×	×
p-xylene	×	×	×

【A】 The Montreal Protocol on Substances that Deplete the Ozone Layer
【B】 Stockholm Convention on Persistent Organic Pollutants (POPs)
【C】 Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

US chemical inventory

Component	A	B	C	D	E	F	G	H
N,N-dimethylformamide	√	×	√	√	√	√	√	√
Cyclohexane	×	×	√	√	√	√	√	×
Methylcyclohexane	×	×	×	√	√	√	√	×
Acetone	×	×	√	√	√	√	√	×
Ethyl acetate	×	×	√	√	√	√	√	×
Methanol	√	×	√	√	√	√	√	√
Isopropyl acetate	×	×	×	√	√	√	√	×
Butanone	×	×	√	√	√	√	√	×
Propan-2-ol	×	×	×	√	√	√	√	×

Ethanol	×	×	×	√	√	√	√	×
Propyl acetate	×	×	×	√	√	√	√	×
4-methylpentan-2-one	√	×	√	√	√	√	√	√
Propan-1-ol	×	×	×	√	√	√	√	×
N-butyl acetate	×	×	√	√	√	√	√	×
2-methylpropan-1-ol	×	×	√	√	√	√	√	×
Butan-1-ol	×	×	√	√	√	√	√	×
2-methoxyethyl acetate	×	×	×	√	√	√	√	√
2-methoxy-1-methylethyl acetate	×	×	×	×	×	×	×	×
1-Methoxy-2-propanol	×	×	×	√	√	√	√	×
1-ethoxypropan-2-ol	×	×	×	×	×	×	×	×
Benzene	√	×	√	√	√	√	√	√
Toluene	√	×	√	√	√	√	√	√
Ethylbenzene	√	×	√	√	√	√	√	√
o-xylene	√	×	√	√	√	√	√	×
m-xylene	√	×	√	√	√	√	√	×
p-xylene	√	×	√	√	√	√	√	×

[A] US Clean Air Act (CAA)- Section 112, Hazardous Air Pollutants
[B] US SARA 302- Extremely Hazardous Substance List
[C] US CERCLA- Hazardous Substances List
[D] US Massachusetts Right-to-Know Substance List
[E] US New Jersey Right to Know Hazardous Substance List
[F] US Pennsylvania Right to Know Hazardous Substance List
[G] US New York City Right-to-Know Hazardous Substance List
[H] US California Proposition 65 List

Note:
"√" Indicates that the substance included in the regulations.
"×" No data or not included in the regulations.

16 Other information

Information on revision

Creation Date	2025/11/01
Revision Date	-
Reason for revision	-

Reference

[1] IPCS: The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home.
[2] IARC, website: http://www.iarc.fr/.
[3] OECD: The Global Portal to Information on Chemical Substances, website: https://www.echemportal.org/echemportal/.
[4] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple.
[5] NLM: ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp.
[6] EPA: Integrated Risk Information System, website: http://cfpub.epa.gov/iris/.
[7] U.S. Department of Transportation: ERG, website: http://www.phmsa.dot.gov/hazmat/library/erg.
[8] Germany GESTIS-database on hazard substance, website: http://gestis-en.itrust.de/.

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC_{50}	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD_{50}	Lethal Dose 50%	NTP	National Toxicology Program
EC_{50}	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC_X	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P_{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor	HCS	Hazard Communication Standard

Disclaimer

This Safety Data Sheet (SDS) was prepared according to OSHA HCS-2024. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.