Safety Data Sheet

13 VOCS in N,N-dimethylformamide

Version：V2.0.0.1
Report No.：BWQ9907-2016-MSDS-EP
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*Prepared in accordance with EU REACH Regulation (REACH 1907/2006 with amendment 2020/878)

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

1.1 Product identifier

Product Name	13 VOCS in N,N-dimethylformamide
Cat No.	BWQ9907-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable
REACH Registration Number	-
UFI	No information available

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

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

1.3 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

1.4 Emergency telephone number

Emergency telephone number	010-58103678
Opening hours	24h

2 Hazards identification

2.1 CLP classification according to Regulation (EC) No. 1272/2008 with amendment 2023/707

Flammable liquids	Category 3
Acute Toxicity - Dermal	Category 4
Serious eye damage/irritation	Category 2
Acute Toxicity - Inhalation	Category 4
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A

Reproductive toxicity	Category 1B

2.2 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
H340	May cause genetic defects
H350	May cause cancer
H360D	May damage the unborn child
EUH066	Repeated exposure may cause skin dryness or cracking

Precautionary statements

- Prevention

P201	Obtain special instructionsbefore use.
P202	Do not handle until allsafety precautions havebeen 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 in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

- Response

P312	Call a POISON CENTRE/ doctor/… if you feel unwell.
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.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
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.

2.3 Other hazards

◆ Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
N,N-dimethylformamide	Insufficient information, temporarily unable to evaluate
Acetone	Not PBT/vPvB
Ethyl acetate	Not PBT/vPvB
Isopropyl acetate	Not PBT/vPvB
Butanone	Not PBT/vPvB
Propan-2-ol	Not PBT/vPvB
Ethanol	Not PBT/vPvB
Benzene	Not PBT/vPvB
Toluene	Not PBT/vPvB
N-butyl acetate	Not PBT/vPvB
p-xylene	Not PBT/vPvB
m-xylene	Not PBT/vPvB
Butan-1-ol	Not PBT/vPvB
o-xylene	Not PBT/vPvB

◆ Results of endocrine disrupting properties assessment

Component	Results of endocrine disrupting properties assessment [according to (EU) No 2017/2100 or (EU) No 2018/605]
N,N-dimethylformamide	Insufficient information, temporarily unable to evaluate
Acetone	Insufficient information, temporarily unable to evaluate
Ethyl acetate	Insufficient information, temporarily unable to evaluate
Isopropyl acetate	Insufficient information, temporarily unable to evaluate
Butanone	Insufficient information, temporarily unable to evaluate
Propan-2-ol	Insufficient information, temporarily unable to evaluate
Ethanol	Insufficient information, temporarily unable to evaluate
Benzene	Insufficient information, temporarily unable to evaluate

Toluene	Insufficient information, temporarily unable to evaluate
N-butyl acetate	Insufficient information, temporarily unable to evaluate
p-xylene	Insufficient information, temporarily unable to evaluate
m-xylene	Insufficient information, temporarily unable to evaluate
Butan-1-ol	Insufficient information, temporarily unable to evaluate
o-xylene	Insufficient information, temporarily unable to evaluate

◆ Other

	Not applicable.

3 Composition/information on ingredients

3.1 Substance

	Not applicable

3.2 Mixture

Component	Weight % content(or range)	Classification according to Regulation (EC) No. 1272/2008 with amendment 2023/707 [CLP]	Specific Conc. Limits, M-factors
N,N-dimethylformamide CAS : 68-12-2 EC : 200-679-5 Index No. : 616-001-00-X	96.62	Acute Toxicity - Dermal, Category 4, H312; Serious eye damage/irritation, Category 2, H319; Acute Toxicity - Inhalation, Category 4, H332; Reproductive toxicity, Category 1B, H360	-
Acetone CAS : 67-64-1 EC : 200-662-2 Index No. : 606-001-00-8	0.26	Flammable liquids, Category 2, H225; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336; Repeated exposure may cause skin dryness or cracking, EUH066	-
Ethyl acetate CAS : 141-78-6 EC : 205-500-4 Index No. : 607-022-00-5	0.26	Flammable liquids, Category 2, H225; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336; Repeated exposure may cause skin dryness or cracking, EUH066	-
Isopropyl acetate CAS : 108-21-4 EC : 203-561-1 Index No. : 607-024-00-6	0.26	Flammable liquids, Category 2, H225; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336; Repeated exposure may cause skin dryness or cracking, EUH066	-
Butanone CAS : 78-93-3 EC : 201-159-0 Index No. : 606-002-00-3	0.26	Flammable liquids, Category 2, H225; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336; Repeated exposure may cause skin dryness or cracking, EUH066	-
Propan-2-ol CAS : 67-63-0 EC : 200-661-7 Index No. : 603-117-00-0	0.26	Flammable liquids, Category 2, H225; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336	-
Ethanol CAS : 64-17-5 EC : 200-578-6 Index No. : 603-002-00-5	0.26	Flammable liquids, Category 2, H225	-

Benzene CAS : 71-43-2 EC : 200-753-7 Index No. : 601-020-00-8	0.26	Flammable liquids, Category 2, H225; Aspiration hazard, Category 1, H304; Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Germ cell mutagenicity, Category 1B, H340; Carcinogenicity, Category 1A, H350; Specific target organ toxicity - repeated exposure, Category 1, H372	-
Toluene CAS : 108-88-3 EC : 203-625-9 Index No. : 601-021-00-3	0.26	Flammable liquids, Category 2, H225; Aspiration hazard, Category 1, H304; Skin Corrosion/Irritation, Category 2, H315; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336; Reproductive toxicity, Category 2, H361; Specific target organ toxicity - repeated exposure, Category 2, H373	-
N-butyl acetate CAS : 123-86-4 EC : 204-658-1 Index No. : 607-025-00-1	0.26	Flammable liquids, Category 3, H226; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336; Repeated exposure may cause skin dryness or cracking, EUH066	-
p-xylene CAS : 106-42-3 EC : 203-396-5 Index No. : 601-022-00-9	0.26	Flammable liquids, Category 3, H226; Acute Toxicity - Dermal, Category 4, H312; Skin Corrosion/Irritation, Category 2, H315; Acute Toxicity - Inhalation, Category 4, H332	-
m-xylene CAS : 108-38-3 EC : 203-576-3 Index No. : 601-022-00-9	0.26	Flammable liquids, Category 3, H226; Acute Toxicity - Dermal, Category 4, H312; Skin Corrosion/Irritation, Category 2, H315; Acute Toxicity - Inhalation, Category 4, H332	-
Butan-1-ol CAS : 71-36-3 EC : 200-751-6 Index No. : 603-004-00-6	0.26	Flammable liquids, Category 3, H226; Acute Toxicity - Oral, Category 4, H302; Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 1, H318; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336	-
o-xylene CAS : 95-47-6 EC : 202-422-2 Index No. : 601-022-00-9	0.26	Flammable liquids, Category 3, H226; Acute Toxicity - Dermal, Category 4, H312; Skin Corrosion/Irritation, Category 2, H315; Acute Toxicity - Inhalation, Category 4, H332	-

4 First-aid measures

4.1 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.

4.2 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.

4.3 Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

5.1 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.

5.2 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.

5.3 Advice for firefighters

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

6.1 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.

6.2 Environmental precautions

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

6.3 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.

6.4 Reference to other sections

1	Personal Protective Equipment advice is contained in Section 8 of the SDS.
2	Disposal considerations advice is contained in Section 13 of the SDS.

7 Handling and storage

7.1 Precautions for safe handling

◆ Protective measures

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.

◆ Measures to prevent fire

1	Use only non-sparking tools.
2	To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
3	Use explosion proof equipment.
4	Keep away from heat/sparks/open flames/ hot surfaces.

◆ Measures to prevent aerosol and dust generation

1	Not applicable.

◆ Advice on general occupational hygiene

1	Wash hands and face after using the substances.
2	Replace the contaminated clothing immediately.

7.2 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.

7.3 Specific end use(s)

1	In addition to use mentioned in the Section 1.2, unforeseen other specific end uses.

8 Exposure controls/personal protection

8.1 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
	France	5	15	10	30
	Germany (AGS)	5	15	10	30
	Germany (DFG)	5	15	10	30
	Italy	5	15	10	30
Acetone	Japan - JSOH(2024–2025)	200	475	-	-
	Permissible exposure standards for workers in the workplace	200	475	250	593.75
	European Union	500	1210	-	-
	France	500	1210	1000	2420
	Germany (AGS)	500	1200	1000	2400
	Germany (DFG)	500	1200	1000	2400
Ethyl acetate	Japan - JSOH(2024–2025)	200	720	-	-
	Permissible exposure standards for workers in the workplace	400	1440	500	1440
	European Union	200	734	400	1468
	France	200	734	400	1468
	Germany (AGS)	200	730	400	1460
	Germany (DFG)	200	750	400	1500
Isopropyl acetate	Japan - JSOH(2024–202	100	-	-	-

	5)				
	Permissible exposure standards for workers in the workplace	250	1040	312.5	1040
	France	250	950	300	1140
	Germany (DFG)	100	420	200	840
	United Kingdom	-	-	200	849
	Austria	100	420	100	420
Butanone	Japan - JSOH(2024–2025)	75	221	-	-
	Permissible exposure standards for workers in the workplace	200	590	250	737.5
	European Union	200	600	300	900
	France	200	600	300	900
	Germany (AGS)	200	600	200	600
	Germany (DFG)	200	600	200	600
Propan-2-ol	Japan - JSOH(2024–2025)	-	-	-	-
	Permissible exposure standards for workers in the workplace	400	983	500	1228.75
	France	-	-	400	980
	Germany (AGS)	200	500	400	1000
	Germany (DFG)	200	500	400	1000
	United Kingdom	400	999	500	1250
Ethanol	Permissible exposure standards for workers in the workplace	1000	1880	1000	1880
	France	1000	1900	5000	9500
	Germany (AGS)	200	380	800	1520
	Germany (DFG)	200	380	800	1520
	United Kingdom	1000	1920	-	-
	Austria	1000	1900	2000	3800
Benzene	Japan - JSOH(2024–2025)	1(individual excess lifetime risk of cancer 10^-3)	-	-	-
	Permissible exposure	1	3.2	2	6.4

	standards for workers in the workplace				
	European Union	0.2	0.66	-	-
	France	1	3.25	-	-
	Germany (AGS)	0.6	1.9	4.8	15.2
	Italy	1	3.25	-	-
Toluene	Japan - JSOH(2024–2025)	50	188	-	-
	Permissible exposure standards for workers in the workplace	50	188	75	235
	European Union	50	192	100	384
	France	20	76.8	100	384
	Germany (AGS)	50	190	100	380
	Germany (DFG)	50	190	100	380
N-butyl acetate	Japan - JSOH(2024–2025)	100	475	-	-
	Permissible exposure standards for workers in the workplace	150	712	187.5	890
	European Union	50	241	150	723
	France	50	241	150	723
	Germany (AGS)	62	300	124	600
	Germany (DFG)	100	480	200	960
p-xylene	Permissible exposure standards for workers in the workplace	100	434	125	542.5
	European Union	50	221	100	442
	France	50	221	100	442
	Germany (AGS)	50	220	100	440
	Germany (DFG)	50	220	100	440
	Italy	50	221	100	442
m-xylene	Permissible exposure standards for workers in the workplace	100	434	125	542.5
	European Union	50	221	100	442
	France	50	221	100	442
	Germany (AGS)	50	220	100	440

	Germany (DFG)	50	220	100	440
	Italy	50	221	100	442
Butan-1-ol	Japan - JSOH(2024–2025)	-	-	-	-
	Permissible exposure standards for workers in the workplace	100	303	125	378.75
	France	-	-	50	150
	Germany (AGS)	100	310	100	310
	Germany (DFG)	100	310	100	310
	United Kingdom	-	-	50	154
o-xylene	Permissible exposure standards for workers in the workplace	100	434	125	542.5
	European Union	50	221	100	442
	Germany (AGS)	50	220	100	440
	Germany (DFG)	50	220	100	440
	Italy	50	221	100	442
	United Kingdom	50	220	100	441

◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
N,N-dimethylformamide	SCOEL(EU)	N-methylformamide/urine	15mg/L	post-shift	
		Sum of N-Methylformamide and N-(Hydroxymethyl)-N-Methylformamide(Urine)	30mg/L	End of shift	
		N-Acetyl-S-(N-methylcarbamoyl) cysteine(Urine)	30mg/L	End of shift at end of work week	
Acetone	USA -ACGIH	Acetone(Urine)	25mg/L	End of shift	
Butanone	USA -ACGIH	MEK(Urine)	2mg/L	End of shift	
Propan-2-ol	USA -ACGIH	Acetone(Urine)	40mg/L	End of shift at end of work week	
Benzene	SCOEL(EU)	benzene/blood	28 μg/L	immediately end of shift	
		phenylmercapturic acid/urine	46 μg/L creatinine	end of exposure/shift	
		S-Phenylmercapturic acid(Creatinine in urine)	25μg/g	End of shift	

		t,t-Muconic acid(Creatinine in urine)	500μg/g	End of shift	
Toluene	USA -ACGIH	o-Cresol, with hydrolysis(Creatinine in urine)	0.3mg/g	End of shift	
		Toluene(Urine)	0.03mg/L	End of shift	
		Toluene(Blood)	0.02mg/L	Prior to last shift of work week	
p-xylene	USA -ACGIH	Methylhippuric acids(Creatinine in urine)	0.3g/g	End of shift	
m-xylene	USA -ACGIH	Methylhippuric acids(Creatinine in urine)	0.3g/g	End of shift	
o-xylene	USA -ACGIH	Methylhippuric acids(Creatinine in urine)	0.3g/g	End of shift	

◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300 and GBZ/T 160 series standard Determination of toxic substances in workplace air.

◆ Derived No effect level (DNEL)

Component	Route of exposure	DNEL for Workers			
		Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
N,N-dimethylformamide	Inhalation	No data available	No data available	No data available	6 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Acetone	Inhalation	No data available	No data available	No data available	1210 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Ethyl acetate	Inhalation	No data available	No data available	734 mg/m3	734 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Isopropyl acetate	Inhalation	No data available	No data available	227 mg/m3	275 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Butanone	Inhalation	No data available	No data available	No data available	600 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Propan-2-ol	Inhalation	No data available	No data available	No data available	500 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Ethanol	Inhalation	No data available	No data available	No data available	380 mg/m3

	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Benzene	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Toluene	Inhalation	No data available	No data available	192 mg/m3	192 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
N-butyl acetate	Inhalation	No data available	No data available	300 mg/m3	300 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
p-xylene	Inhalation	No data available	No data available	221 mg/m3	221 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
m-xylene	Inhalation	No data available	No data available	221 mg/m3	221 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Butan-1-ol	Inhalation	No data available	No data available	310 mg/m3	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
o-xylene	Inhalation	No data available	No data available	221 mg/m3	221 mg/m3
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available

◆ Predicted No Effect Concentration (PNEC)

Component	A	B	C	D	E	F	G	H
N,N-dimethylformamide	No hazard identified	No hazard identified	44 mg/L	111 mg/kg sediment dw	11.1 mg/kg sediment dw	No hazard identified	No hazard identified	No potential for bioaccumulation
Acetone	10.6 mg/L	1.06 mg/L	100 mg/L	30.4 mg/kg sediment dw	3.04 mg/kg sediment dw	No hazard identified	29.5 mg/kg soil dw	No potential for bioaccumulation
Ethyl acetate	240 µg/L	24 µg/L	650 mg/L	1.15 mg/kg sediment dw	115 µg/kg sediment dw	No hazard identified	148 µg/kg soil dw	200 mg/kg food
Isopropyl acetate	220 µg/L	22 µg/L	190 mg/L	1.25 mg/kg sediment dw	125 µg/kg sediment dw	No hazard identified	350 µg/kg soil dw	No potential for bioaccumulation
Butanone	No hazard	No hazard	No hazard	No hazard	No hazard	No hazard	No hazard	No potential

	identified	identified	identified	identified	identified	identified	identified	for bioaccumulation
Propan-2-ol	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No potential for bioaccumulation
Ethanol	960 µg/L	790 µg/L	580 mg/L	3.6 mg/kg sediment dw	2.9 mg/kg sediment dw	No hazard identified	630 µg/kg soil dw	380 - 720 mg/kg food
Benzene	80 µg/L	8 µg/L	39 mg/L	1.36 mg/kg sediment dw	136 µg/kg sediment dw	No data available	225 µg/kg soil dw	No potential for bioaccumulation
Toluene	74 - 680 µg/L	7.4 - 680 µg/L	840 - 13610 µg/L	1.78 - 16.39 mg/kg sediment dw	178 - 16390 µg/kg sediment dw	No hazard identified	313 - 2890 µg/kg soil dw	No potential for bioaccumulation
N-butyl acetate	180 µg/L	18 µg/L	35.6 mg/L	981 µg/kg sediment dw	98.1 µg/kg sediment dw	No hazard identified	90.3 µg/kg soil dw	No potential for bioaccumulation
p-xylene	44 µg/L	4.4 µg/L	1.6 mg/L	2.52 mg/kg sediment dw	252 µg/kg sediment dw	No hazard identified	852 µg/kg soil dw	No potential for bioaccumulation
m-xylene	44 µg/L	4.4 µg/L	1.6 mg/L	2.52 mg/kg sediment dw	252 µg/kg sediment dw	No hazard identified	852 µg/kg soil dw	No potential for bioaccumulation
Butan-1-ol	82 µg/L	8.2 µg/L	2.476 g/L	324 µg/kg sediment dw	32.4 µg/kg sediment dw	No hazard identified	16.6 µg/kg soil dw	No potential for bioaccumulation
o-xylene	8.8 - 250 µg/L	880 - 250000 ng/L	1.6 - 5 mg/L	500 - 14330 µg/kg sediment dw	50 - 14330 µg/kg sediment dw	No hazard identified	95 - 2410 µg/kg soil dw	No potential for bioaccumulation

Note 1:

A: Freshwater; B: Seawater; C: Sewage treatment plant; D: Sediment (freshwater); E: Sediment (seawater); F: Air; G: Soil; H: Secondary poisoning(Hazard for Predators).

Note 2:

The PNEC values of the remaining components not shown in the product are not available yet.

8.2 Exposure controls

8.2.1 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.

8.2.2 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.

8.2.3 Environmental exposure controls

Environmental exposure controls	No information available

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	clear or yellow liquid
Colour	clear or yellow 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)
Explosive properties	No information available
Oxidizing properties	No information available
Particle characteristics	Not applicable

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Information with regard to	No information available

physical hazard classes	

9.2.2 Other safety characteristics

Other safety characteristics	No information available

10 Stability and reactivity

Stability and reactivity

10.1 Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
10.2 Chemical stability	Stable under proper operation and storage conditions.
10.3 Possibility of hazardous reactions	Hydrolyzes into acids and amine(ammonia) if catalyzed by acids or alkalis. 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.
10.4 Conditions to avoid	Incompatible materials, heat, flame and spark.
10.5 Incompatible materials	Acids, alkalis, oxidants, ammonia, isocyanate, phenol and cresol. 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.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008 with amendment 2023/707

13 VOCS 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 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	May cause genetic defects(Category 1B)

Acute toxicity

Component	LD_{50}(oral)	LD_{50}(dermal)	LC_{50}(inhalation,4h)
Isopropyl acetate	6750mg/kg(Rat)	> 17400mg/kg(Rabbit)	No information available
Benzene	930mg/kg(Rat)	> 8260mg/kg(Rabbit)	No information available
Butan-1-ol	790mg/kg(Rat)	3400mg/kg(Rabbit)	24.252mg/L(Rat)
Ethyl acetate	5620mg/kg(Rat)	> 18000mg/kg(Rabbit)	No information available
Toluene	636mg/kg(Rat)	12200mg/kg(Rabbit)	49mg/L(Rat)
p-xylene	5000mg/kg(Rat)	No information available	19.758mg/L(Rat)

Propan-2-ol	5045mg/kg(Rat)	12800mg/kg(Rabbit)	No information available
Acetone	5800mg/kg(Rat)	> 15800mg/kg(Rabbit)	76mg/L(Rat)
Ethanol	7060mg/kg(Rat)	No information available	39mg/L(Mouse)
N,N-dimethylformamide	2800mg/kg(Rat)	4720mg/kg(Rabbit)	No information available
N-butyl acetate	10768mg/kg(Rat)	> 17600mg/kg(Rabbit)	No information available
m-xylene	5000mg/kg(Rat)	12200mg/kg(Rabbit)	No information available
Butanone	2737mg/kg(Rat)	6480mg/kg(Rabbit)	32mg/L(Mouse)

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
N,N-dimethylformamide	Category 2A	Not Listed
Acetone	Not Listed	Not Listed
Ethyl acetate	Not Listed	Not Listed
Isopropyl acetate	Not Listed	Not Listed
Butanone	Not Listed	Not Listed
Propan-2-ol	Category 3	Not Listed
Ethanol	Category 1(Remark 1)	Not Listed
Benzene	Category 1	Category K
Toluene	Category 3	Not Listed
N-butyl acetate	Not Listed	Not Listed
p-xylene	Not Listed	Not Listed
m-xylene	Not Listed	Not Listed
Butan-1-ol	Not Listed	Not Listed
o-xylene	Not Listed	Not Listed

Remark 1: for alcoholic beverages only

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Component	Endocrine disrupting properties
N,N-dimethylformamide	No information available
Acetone	No information available
Ethyl acetate	No information available
Isopropyl acetate	No information available
Butanone	No information available
Propan-2-ol	No information available
Ethanol	No information available
Benzene	No information available
Toluene	No information available

N-butyl acetate	No information available
p-xylene	No information available
m-xylene	No information available
Butan-1-ol	No information available
o-xylene	No information available

11.2.2 Other Information

Other Information	See Section 11.1

12 Ecological information

12.1 Toxicity

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
Benzene	LC_{50} : 21.6mg/L (96h)(Fish)	EC_{50} : 10.9mg/L (48h)(Crustaceans)	ErC_{50} : 1600mg/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)
Butan-1-ol	LC_{50} : >100mg/L (96h)(Fish)	EC_{50} : >1000mg/L (48h)(Crustaceans)	ErC_{50} : >1000mg/L (72h)(Algae)
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)
p-xylene	LC_{50} : 5.5mg/L (96h)(Fish)	EC_{50} : 6.9mg/L (48h)(Crustaceans)	ErC_{50} : 9.6mg/L (72h)(Algae)
Propan-2-ol	LC_{50} : 9640mg/L (96h)(Fish)	EC_{50} : >1000mg/L (48h)(Crustaceans)	ErC_{50} : >1000mg/L (72h)(Algae)
Acetone	LC_{50} : 5540mg/L (96h)(Fish)	EC_{50} : 18500mg/L (48h)(Crustaceans)	ErC_{50} : 7200mg/L (96h)(Algae)
Ethanol	LC_{50} : 11200mg/L (96h)(Fish)	EC_{50} : 9950mg/L (48h)(Crustaceans)	No information available
N,N-dimethylformamide	LC_{50} : 10500mg/L (96h)(Fish)	EC_{50} : >1000mg/L (48h)(Crustaceans)	ErC_{50} : >1000mg/L (72h)(Algae)
N-butyl acetate	LC_{50} : 18mg/L (96h)(Fish)	No information available	No information available
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)

Chronic aquatic toxicity

Component	Fish	Crustaceans	Algae or other aquatic plants
o-xylene	No information available	NOEC : 0.63mg/L(Crustaceans)	NOEC : 0.73mg/L(Algae)
Butan-1-ol	NOEC : 46mg/L(Fish)	NOEC :	NOEC : 180mg/L(Algae)

		4.1mg/L(Crustaceans)	
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)
N,N-dimethylformamide	NOEC : > 102mg/L(Fish)	NOEC : >1000mg/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)

12.2 Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
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)
p-xylene	High(Half-life = 360 days)	Low(Half-life = 1.75 days)
m-xylene	High(Half-life = 360 days)	Low(Half-life = 1.08 days)
Butan-1-ol	Low(Half-life = 54 days)	Low(Half-life = 3.65 days)
o-xylene	High(Half-life = 360 days)	Low(Half-life = 1.83 days)

12.3 Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Butanone	Low	Log Kow=0.29
Ethanol	Low	Log Kow=-0.31
p-xylene	Low	BCF=2.2
m-xylene	Low	BCF=1.37
Butan-1-ol	Low	BCF=64
o-xylene	Low	BCF=219

12.4 Mobility in soil

Component	log Koc	Remark
N,N-dimethylformamide	0	
Butanone	0.654	25 ℃
Propan-2-ol	0.54	20 ℃
Ethanol	0	
Benzene	2.13	20 ℃
Toluene	2.31	20 ℃
p-xylene	2.73	20 ℃
m-xylene	2.73	20 ℃

Butan-1-ol	0.54	20 ℃
o-xylene	2.73	20 ℃

12.5 Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
N,N-dimethylformamide	Insufficient information, temporarily unable to evaluate
Acetone	Not PBT/vPvB
Ethyl acetate	Not PBT/vPvB
Isopropyl acetate	Not PBT/vPvB
Butanone	Not PBT/vPvB
Propan-2-ol	Not PBT/vPvB
Ethanol	Not PBT/vPvB
Benzene	Not PBT/vPvB
Toluene	Not PBT/vPvB
N-butyl acetate	Not PBT/vPvB
p-xylene	Not PBT/vPvB
m-xylene	Not PBT/vPvB
Butan-1-ol	Not PBT/vPvB
o-xylene	Not PBT/vPvB

12.6 Endocrine disrupting properties

Component	Endocrine disrupting properties
N,N-dimethylformamide	No information available
Acetone	No information available
Ethyl acetate	No information available
Isopropyl acetate	No information available
Butanone	No information available
Propan-2-ol	No information available
Ethanol	No information available
Benzene	No information available
Toluene	No information available
N-butyl acetate	No information available
p-xylene	No information available
m-xylene	No information available
Butan-1-ol	No information available
o-xylene	No information available

12.7 Other adverse effects

	No information available

13 Disposal considerations

13.1 Waste treatment methods

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

14.1 UN number	2265
14.2 UN proper shipping name	N, N-DIMETHYLFORMAMIDE
14.3 Transport hazard class	3
14.4 Packing group	Ⅲ
14.5 Environmental hazards (Yes or no)	No

IATA-DGR

14.1 UN number	2265
14.2 UN proper shipping name	N,N-DIMETHYLFORMAMIDE
14.3 Transport hazard class	3
14.4 Packing group	Ⅲ
14.5 Environmental hazards (Yes or no)	No

UN-ADR

14.1 UN number	2265
14.2 UN proper shipping name	N, N-DIMETHYLFORMAMIDE
14.3 Transport hazard class	3
14.4 Packing group	Ⅲ
14.5 Environmental hazards (Yes or no)	No

Special precautions for user

	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.

Maritime 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

15 Regulatory information

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

International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
N,N-dimethylformamide	√	√	√	√	√	√	√	√	√	√	√	√	√
Acetone	√	√	√	√	√	√	√	√	√	√	√	√	√
Ethyl acetate	√	√	√	√	√	√	√	√	√	√	√	√	√
Isopropyl acetate	√	√	√	√	√	√	√	√	√	√	√	√	√
Butanone	√	√	√	√	√	√	√	√	√	√	√	√	√
Propan-2-ol	√	√	√	√	√	√	√	√	√	√	√	√	√
Ethanol	√	√	√	√	√	√	√	√	√	√	√	√	√
Benzene	√	√	√	√	√	√	√	√	√	√	√	√	√
Toluene	√	√	√	√	√	√	√	√	√	√	√	√	√
N-butyl acetate	√	√	√	√	√	√	√	√	√	√	√	√	√
p-xylene	√	√	√	√	√	√	√	√	√	√	√	√	√
m-xylene	√	√	√	√	√	√	√	√	√	√	√	√	√
Butan-1-ol	√	√	√	√	√	√	√	√	√	√	√	√	√
o-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	×	×	×
Acetone	×	×	×
Ethyl acetate	×	×	×
Isopropyl acetate	×	×	×
Butanone	×	×	×
Propan-2-ol	×	×	×
Ethanol	×	×	×
Benzene	×	×	×
Toluene	×	×	×
N-butyl acetate	×	×	×
p-xylene	×	×	×
m-xylene	×	×	×
Butan-1-ol	×	×	×
o-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

European chemical inventory

Component	A	B	C	D	E	F	G	H	I
N,N-dimethylformamide	√	×	√	√	√	×	×	×	×
Acetone	×	×	×	√	√	×	×	×	×
Ethyl acetate	×	×	×	√	√	×	×	×	×
Isopropyl acetate	×	×	×	√	√	×	×	×	×
Butanone	×	×	×	√	√	√	×	×	×
Propan-2-ol	×	×	×	√	√	×	×	×	×
Ethanol	×	×	×	√	√	×	×	×	×
Benzene	×	×	√	√	√	×	√	×	×
Toluene	×	×	√	√	√	√	×	×	×
N-butyl acetate	×	×	×	√	√	×	×	×	×
p-xylene	×	×	×	√	√	√	×	×	×
m-xylene	×	×	×	√	√	√	×	×	×
Butan-1-ol	×	×	×	√	√	√	×	×	×
o-xylene	×	×	×	√	√	√	×	×	×

[A] Candidate list of Substances of Very High Concern for authorization under EU REACH regulation
[B] Substances requiring authorisation under EU REACH regulation

[C] Substances restricted under EU REACH
[D] Pre-registered substances under EU REACH
[E] Registered substances under EU REACH
[F] Substance Evaluation – CoRAP under EU REACH
[G] List of priority substances under EU water policy （Directive 2455/2001/EC）
[H] Substances subject to POPs Regulation
[I] Substances proposed as POPs

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

German water hazard class(WGK)

Component	WGK	Remark
N,N-dimethylformamide	WGK 2	
Acetone	WGK 1	
Ethyl acetate	WGK 1	
Isopropyl acetate	WGK 1	
Butanone	WGK 1	
Propan-2-ol	WGK 1	
Ethanol	WGK 1	The assessment refers to pure ethanol. Denatured alcohol must be classified in accordance with Annex 1 No. 5 of the AwSV.
Benzene	WGK 3	
Toluene	WGK 3	
N-butyl acetate	WGK 1	
p-xylene	WGK 2	
m-xylene	WGK 2	
Butan-1-ol	WGK 1	
o-xylene	WGK 2	

【WGK 1】 slightly hazardous to water
【WGK 2】 obviously hazardous to water
【WGK 3】 highly hazardous to water
【nwg】 non-hazardous to water
【awg】 hazardous to water in general

German technical instructions on air quality control(TA LUFT)

Component	TA LUFT	Remark
N,N-dimethylformamide	Chapter 5.2.7.1.3 Substances toxic to reproductionMass flow: 2,5 g/hr or Mass conc.: 1 mg/m³	
Acetone	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not	

	allowed to exceed 1,5 kg/h.	
Ethyl acetate	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
Isopropyl acetate	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
Butanone	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
Propan-2-ol	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
Ethanol	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
Benzene	Chapter 5.2.7.1.1 Carcinogenic substances. Class II. As minimum requirement, the following values are in all not allowed to be exceeded in the exhaust gas:Mass flow:1,5 g/hr or Mass conc.:0,5 mg/m³	
Toluene	Chapter 5.2.5 Organic Substances, class I. The following values are in all not allowed to be exceeded in the exhaust gas:Mass flow:0,10 kg/hr or	

	Mass conc.:20 mg/m³	
N-butyl acetate	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
p-xylene	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
m-xylene	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
Butan-1-ol	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
o-xylene	Chapter 5.2.5 Organic Substances.The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:Mass flow:0,50 kg/hr or Mass conc.:50 mg/m³ At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	

German technical rules for hazardous substances(TRGS)

Component	TRGS	Remark
N,N-dimethylformamide	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	

Acetone	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
Ethyl acetate	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
Isopropyl acetate	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
Butanone	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
Propan-2-ol	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724|TRGS 906	
Ethanol	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
Benzene	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 410|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
Toluene	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
N-butyl acetate	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
p-xylene	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
m-xylene	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS	

	721|TRGS 722|TRGS 723|TRGS 724	
Butan-1-ol	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	
o-xylene	TRGS 201|TRGS 400|TRGS 555|TRGS 600|TRGS 402|TRGS 401|TRGS 500|TRGS 509|TRGS 510|TRGS 800|TRGS 720|TRGS 721|TRGS 722|TRGS 723|TRGS 724	

15.2 Chemical safety assessment

	No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

16 Other information

Information on revision

Creation Date	2025/12/31
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		

Disclaimer

This Safety Data Sheet (SDS) was prepared according to REACH Regulation 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

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