

Revision date 08/23/2024

1 Identification

· Product identifier

· Product Name: DM 471 Standard (1X1 mL)

· Part number: D471-HA-1

· Application of the substance / the mixture Reagents and Standards for Analytical Chemical Laboratory Use

· Details of the supplier of the safety data sheet

Manufacturer/Supplier:
 Agilent Technologies, Inc.
 5301 Stevens Creek Blvd.
 Santa Clara, CA 95051 USA

· Information department:

Telephone: 800-227-9770

e-mail: pdl-msds author@agilent.com

· Emergency telephone number: CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

· Classification of the substance or mixture



GHS02 Flame

Flammable Liquids 2

H225 Highly flammable liquid and vapor.



GHS06 Skull and crossbones

Acute Toxicity - Inhalation 3

H331 Toxic if inhaled.



GHS08 Health hazard

Specific Target Organ Toxicity - Single Exposure 1 H370 Causes damage to the central nervous system and the visual organs.

- · Label elements
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms







GHS02

GHS06

GHS08

- · Signal word Danger
- Hazard-determining components of labeling: methanol
- · Hazard statements

H225 Highly flammable liquid and vapor.

H331 Toxic if inhaled.

H370 Causes damage to the central nervous system and the visual organs.

(Contd. on page 2)



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

(Contd. of page 1)

· Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P241 Use explosion-proof electrical/ventilating/lighting/equipment.

Do not breathe dust/fume/gas/mist/vapors/spray. P260

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

Ground/bond container and receiving equipment. P240

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

Wash thoroughly after handling. P264

Do not eat, drink or smoke when using this product. P270 P271 Use only outdoors or in a well-ventilated area.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/

shower.

P321 Specific treatment (see on this label).

IF exposed: Call a POISON CENTER or doctor/physician. P307+P311

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

In case of fire: Use CO2, powder or water spray to extinguish. P370+P378

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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

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

regulations.

· Classification system:

· NFPA ratings (scale 0 - 4)



Health = 1Fire = 3Reactivity = 0

· HMIS-ratings (scale 0 - 4)



Health = *1Fire = 3

REACTIVITY 0 Reactivity = 0

- · Other hazards
- · Results of PBT and vPvB assessment
- · PBT: Not applicable.
- · vPvB: Not applicable.

3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

67-56-1 methanol 99.8236%



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

(Contd. of page 2)

4 First-aid measures

- · Description of first aid measures
- · General information:

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

· After inhalation:

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- · After swallowing: If symptoms persist consult doctor.
- · Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- · Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents:

CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

- · For safety reasons unsuitable extinguishing agents: Water with full jet
- · Special hazards arising from the substance or mixture

During heating or in case of fire poisonous gases are produced.

- · Advice for firefighters
- · Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

- Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- · Methods and material for containment and cleaning up:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

· Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:		
67-56-1	methanol	530 ppm
67-66-3	trichloromethane	2 ppm
74-87-3	chloromethane	150 ppm
		(Contd. on page 4)

US



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

		(Contd. of page
75-01-4	vinyl chloride	250 ppm
75-09-2	dichloromethane	200 ppm
75-25-2	bromoform	1.5 ppm
75-27-4	bromodichloromethane	1.3 mg/m
75-34-3	1,1-dichloroethane	300 ppm
75-35-4	1,1-dichloroethylene	45 ppm
78-87-5	1,2-dichloropropane	30 ppm
106-93-4	1,2-dibromoethane	17 ppm
107-06-2	1,2-dichloroethane	50 ppm
124-48-1	dibromochloromethane	1.1 mg/m
156-59-2	cis-dichloroethylene	140 ppm
156-60-5	trans-dichloroethylene	280 ppm
· PAC-2:		<u> </u>
67-56-1	methanol	2,100 ppn
67-66-3	trichloromethane	64 ppm
74-87-3	chloromethane	910 ppm
75-01-4	vinyl chloride	1,200 ppn
75-09-2	dichloromethane	560 ppm
75-25-2	bromoform	6.8 ppm
75-27-4	bromodichloromethane	14 mg/m³
75-34-3	1,1-dichloroethane	670 ppm
75-35-4	1,1-dichloroethylene	500 ppm
78-87-5	1,2-dichloropropane	220 ppm
106-93-4	1,2-dibromoethane	24 ppm
107-06-2	1,2-dichloroethane	200 ppm
124-48-1	dibromochloromethane	12 mg/m³
156-59-2	cis-dichloroethylene	500 ppm
156-60-5	trans-dichloroethylene	1,000 ppn
· PAC-3:		
67-56-1	methanol	7200* ppn
67-66-3	trichloromethane	3,200 ppm
74-87-3	chloromethane	3,000 ppm
75-01-4	vinyl chloride	4800* ppn
75-09-2	dichloromethane	6,900 ppm
75-25-2	bromoform	41 ppm
75-27-4	bromodichloromethane	85 mg/m ³
75-34-3	1,1-dichloroethane	4,000 ppm
75-35-4	1,1-dichloroethylene	1,000 ppm
78-87-5	1,2-dichloropropane	2,000 ppm
106-93-4	1,2-dibromoethane	46 ppm
107-06-2	1,2-dichloroethane	300 ppm



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

		Contd. of page 4)
124-48-1	dibromochloromethane	73 mg/m ³
156-59-2	cis-dichloroethylene	850 ppm
156-60-5	trans-dichloroethylene	1,700 ppm

7 Handling and storage

- · Handling:
- · Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

· Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

- · Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles: Store in a cool location.
- · Information about storage in one common storage facility: Not required.
- · Further information about storage conditions:

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters

· Com	· Components with limit values that require monitoring at the workplace:			
67-50	5-1 methanol			
PEL	Long-term value: 260 mg/m³, 200 ppm			
REL	Short-term value: 325 mg/m³, 250 ppm Long-term value: 260 mg/m³, 200 ppm Skin			
TLV	Short-term value: 250 ppm Long-term value: 200 ppm Skin; BEIc			

· Ingredients with biological limit values:

67-56-1 methanol

BEI 15 mg/L Medium: urine Time: end of shift

Parameter: Methanol (background, nonspecific)

· Additional information: The lists that were valid during the creation were used as basis.

(Contd. on page 6)



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

(Contd. of page 5)

- · Exposure controls
- · Personal protective equipment:
- · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

· Breathing equipment:

When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.

Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.

· Protection of hands:

Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

· Material of gloves

For normal use: nitrile rubber, 11-13 mil thickness

For direct contact with the chemical: butyl rubber, 12-15 mil thickness

· Penetration time of glove material

For normal use: nitrile rubber: 1 hour

For direct contact with the chemical: butyl rubber: >4 hours

· Eve protection:



Tightly sealed goggles

9 Physical and chemical properties

- Information on basic physical and chemical properties
 General Information
 Appearance:

 Form:
 Fluid
- Color: Colorless
 Odor: Alcohol-like
 Odor threshold: Not determined.
- · pH-value: Not determined.
- · Change in condition

Melting point/Melting range: -98 °C (-144.4 °F)
Boiling point/Boiling range: 64 °C (147.2 °F)

• Flash point: 9 °C (48.2 °F)

• Flammability (solid, gaseous): Highly flammable.

· Auto igniting: 455 °C (851 °F)

(Contd. on page 7)



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

	(Contd. of page
Decomposition temperature:	Not determined.
· Ignition temperature:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	5.5 Vol %
Upper:	44 Vol %
· Vapor pressure at 20 °C (68 °F):	100 hPa (75 mm Hg)
· Density at 20 °C (68 °F):	0.80129 g/cm ³ (6.68677 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/wate	er): Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	99.9 %
VOC content:	99.87 %
	800.3 g/l / 6.68 lb/gal
· Other information	No further relevant information available.

10 Stability and reactivity

- · Reactivity No further relevant information available.
- · Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · LD/LC50 values that are relevant for classification:

ATE (Acute Toxicity Estimate)

Inhalative LC50/4 h 3.01 mg/L

(Contd. on page 8)



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

(Contd. of page 7)

67-56-1 m	67-56-1 methanol			
Oral	LD50	5,628 mg/kg (rat)		
Dermal	LD50	15,800 mg/kg (rabbit)		

- · Primary irritant effect:
- · on the skin: No irritant effect.
- · on the eve: No irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:

· Carcinogenic categories

67-66-3	trichloromethane	2B
74-87-3	chloromethane	3
75-01-4	vinyl chloride	1
75-09-2	dichloromethane	2A
75-25-2	bromoform	3
75-27-4	bromodichloromethane	2B
75-35-4	1,1-dichloroethylene	2B
78-87-5	1,2-dichloropropane	1
106-93-4	1,2-dibromoethane	2A
107-06-2	1,2-dichloroethane	2B
124-48-1	dibromochloromethane	3
· NTP (Na	tional Toxicology Program)	
67-66-3	trichloromethane	R
75-01-4	vinyl chloride	K
75-09-2	dichloromethane	R
75-27-4	bromodichloromethane	R
106-93-4	1,2-dibromoethane	R
107-06-2	1,2-dichloroethane	R
· OSHA-C	a (Occupational Safety & Health Administration)	
	vinyl chloride	
75-09-2	dichloromethane	

12 Ecological information

- ·Toxicity
- · Aquatic toxicity: No further relevant information available.
- Persistence and degradability No further relevant information available.
- Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.

(Contd. on page 9)



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

(Contd. of page 8)

- · Additional ecological information:
- · General notes:

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

14 Transport information

·Not	Regulated,	De i	minimis	Quantities	

· UN-Number

· DOT, IMDG, IATA UN1230

· UN proper shipping name

• DOT Methanol solution
• IMDG, IATA METHANOL solution

- · Transport hazard class(es)
- \cdot DOT





· Class 3 Flammable liquids

· **Label** 3, 6.1

 \cdot IMDG



· Class 3 Flammable liquids

· **Label** 3/6.1

(Contd. on page 10)



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

(Contd. of page 9)

·IATA





· Class 3 Flammable liquids

· **Label** 3 (6.1)

· Packing group

· DOT, IMDG, IATA

• Environmental hazards: Not applicable.

· Special precautions for user Warning: Flammable liquids

· Hazard identification number (Kemler code): 336

EMS Number: F-E,S-D

· Stowage Category B

• Stowage Code SW2 Clear of living quarters.

· Transport in bulk according to Annex II of

MARPOL73/78 and the IBC Code Not applicable.

· Transport/Additional information:

 \cdot DOT

• Quantity limitations On passenger aircraft/rail: 1 L

On cargo aircraft only: 60 L

 $\cdot\, IMDG$

· Limited quantities (LQ) 1L · Excepted quantities (EQ) Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· UN "Model Regulation": UN 1230 METHANOL SOLUTION, 3 (6.1), II

15 Regulatory information

- · Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.
- · Sara

· Section	355	(extremely	hazardous	substances):
Section	222	I CALI CIIICI V	Hazai uvus	substancest.

67-66-3 trichloromethane

75-34-3 1,1-dichloroethane

· Section 313 (Specific toxic chemical listings):

67-56-1 methanol

67-66-3 trichloromethane

74-87-3 chloromethane

75-01-4 vinyl chloride

75-09-2 dichloromethane

(Contd. on page 11)



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

	(Contd. of page 10
	bromoform
	bromodichloromethane
	1,1-dichloroethane
75-35-4	1,1-dichloroethylene
	1,2-dichloropropane
	1,2-dibromoethane
107-06-2	1,2-dichloroethane
,	oxic Substances Control Act):
All compo	onents have the value ACTIVE.
· Hazardoı	us Air Pollutants
67-56-1	methanol
67-66-3	trichloromethane
74-87-3	chloromethane
	vinyl chloride
75-09-2	dichloromethane
75-25-2	bromoform
75-34-3	1,1-dichloroethane
75-35-4	1,1-dichloroethylene
78-87-5	1,2-dichloropropane
106-93-4	1,2-dibromoethane
107-06-2	1,2-dichloroethane
· Propositi	on 65
· Chemical	s known to cause cancer:
67-66-3	trichloromethane
	vinyl chloride
75-09-2	dichloromethane
75-25-2	bromoform
75-27-4	bromodichloromethane
	1,1-dichloroethane
75-35-4	1,1-dichloroethylene
78-87-5	1,2-dichloropropane
106-93-4	1,2-dibromoethane
107-06-2	1,2-dichloroethane
· Chemical	s known to cause reproductive toxicity for females:
None of the	ne ingredients is listed.
· Chemical	s known to cause reproductive toxicity for males:
74-87-3	chloromethane
106-93-4	1,2-dibromoethane
· Chemical	s known to cause developmental toxicity:
	methanol
	trichloromethane



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

		(Contd. of page 11
74-87-3	chloromethane	`
106-93-4	1,2-dibromoethane	
· Carcinog	enic categories	
· EPA (En	vironmental Protection Agency)	
67-66-3	trichloromethane	B2, L, NL
74-87-3	chloromethane	D, CBD
75-01-4	vinyl chloride	A, K/L
75-09-2	dichloromethane	L
75-25-2	bromoform	B2
75-27-4	bromodichloromethane	B2
75-34-3	1,1-dichloroethane	С
75-35-4	1,1-dichloroethylene	C, S (inh.), I (oral)
106-93-4	1,2-dibromoethane	L
107-06-2	1,2-dichloroethane	B2
124-48-1	dibromochloromethane	С
156-59-2	cis-dichloroethylene	II
156-60-5	trans-dichloroethylene	II
· TLV (Th	reshold Limit Value)	•
67-66-3	trichloromethane	A3
74-87-3	chloromethane	A4
75-01-4	vinyl chloride	A1
75-09-2	dichloromethane	A3
75-25-2	bromoform	A3
75-34-3	1,1-dichloroethane	A4
75-35-4	1,1-dichloroethylene	A4
78-87-5	1,2-dichloropropane	A4
106-93-4	1,2-dibromoethane	A3
107-06-2	1,2-dichloroethane	A4
· NIOSH-C	Ca (National Institute for Occupational Safety and Health)	
67-66-3	trichloromethane	
74-87-3	chloromethane	
75-01-4	vinyl chloride	
75-09-2	dichloromethane	
75-35-4	1,1-dichloroethylene	
78-87-5	1,2-dichloropropane	
106-93-4	1,2-dibromoethane	
107-06-2	1,2-dichloroethane	
· Chemical	safety assessment: A Chemical Safety Assessment has not been carried ou	ıt.



Printing date 08/23/2024 Revision date 08/23/2024

Product Name: DM 471 Standard (1X1 mL)

(Contd. of page 12)

16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

- Department issuing SDS: Document Control / Regulatory
- · Contact: pdl-acg-regulatory-cq@agilent.com
- · Date of preparation / last revision 08/23/2024 / 4
- · Abbreviations and acronyms:

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International

Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA) HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flammable Liquids 2: Flammable liquids – Category 2

Acute Toxicity - Inhalation 3: Acute toxicity - Category 3

Specific Target Organ Toxicity - Single Exposure 1: Specific target organ toxicity (single exposure) - Category 1

* Data compared to the previous version altered.

US ·