

# SAFETY DATA SHEET

Version 6.13  
Revision Date 05/06/2025  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Wright Stain solution

Product Number : 32857

Brand : Sigma

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765

Fax : +1 800 325-5052

### 1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

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## SECTION 2. HAZARDS IDENTIFICATION

### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 2

Acute toxicity (Oral) : Category 3

Acute toxicity : Category 3

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(Inhalation)

Acute toxicity (Dermal) : Category 3

Eye irritation : Category 2A

Skin sensitization : Category 1

Specific target organ toxicity - single exposure : Category 1 (Eyes, Central nervous system)

**Other hazards**

None known.

**GHS label elements**

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H225 Highly flammable liquid and vapor.  
H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H370 Causes damage to organs (Eyes, Central nervous system).

Precautionary Statements : **Prevention:**  
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P260 Do not breathe mist or vapors.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P280 Wear protective gloves/ eye protection/ face protection.

**Response:**

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage:**

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

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

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Methanol	67-56-1*	>= 70 - < 90	-
Eosin G	17372-87-1*	>= 10 - < 20	-
Methylene blue	61-73-4*	>= 10 - < 20	-

\* Indicates that the identifier is a CAS No.

Actual concentration is withheld as a trade secret

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**SECTION 4. FIRST AID MEASURES**

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General advice	: First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.
If inhaled	: After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
In case of skin contact	: In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
In case of eye contact	: After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.
If swallowed	: After swallowing: fresh air. Make victim drink ethanol (e.g. 1 drinking glass of a 40% alcoholic beverage). Call a doctor immediately (mention methanol ingestion). Only in exceptional cases, if no medical care is available within one hour, induce vomiting (only in fully conscious persons) and make victim drink ethanol again (approx. 0.3 ml of a 40% alcoholic beverage/kg body weight/hour).
Most important symptoms and effects, both acute and delayed	: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Protection of first-aiders	: For personal protection see section 8.
Notes to physician	: No data available

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## SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Foam Carbon dioxide (CO <sub>2</sub> ) Dry powder
Unsuitable extinguishing media	: For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	: Mixture with combustible ingredients.  Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

Hazardous combustion products : Carbon oxides

Nitrogen oxides (NO<sub>x</sub>)

Sulfur oxides

Hydrogen chloride gas

Hydrogen bromide gas

Sodium oxides

Specific extinguishing methods : No data available

Further information : Remove container from danger zone and cool with water.  
Suppress (knock down) gases/vapors/mists with a water spray jet.  
Prevent fire extinguishing water from contaminating surface water or the ground water system.

Special protective equipment for fire-fighters : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Advice for non-emergency personnel:  
Do not breathe vapors, aerosols.  
Avoid substance contact.

Ensure adequate ventilation.  
 Keep away from heat and sources of ignition.  
 Evacuate the danger area, observe emergency procedures, consult an expert.  
 Advice for emergency responders:  
 For personal protection see section 8.

- Environmental precautions : Do not let product enter drains.  
 Risk of explosion.
- Methods and materials for containment and cleaning up : Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10).  
 Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

- Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition.  
 Take precautionary measures against static discharge.
- Advice on safe handling : Work under hood. Do not inhale substance/mixture.  
 Avoid generation of vapours/aerosols.
- Further information on storage conditions : Keep container tightly closed in a dry and well-ventilated place.  
 Keep away from heat and sources of ignition.  
 Keep locked up or in an area accessible only to qualified or authorized persons.
- Storage class : 3, Flammable liquids
- Recommended storage temperature : Recommended storage temperature see product label.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methanol	67-56-1	TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH
		ST	250 ppm 325 mg/m <sup>3</sup>	NIOSH REL

		TWA	200 ppm 260 mg/m <sup>3</sup>	NIOSH REL
		TWA	200 ppm 260 mg/m <sup>3</sup>	OSHA Z-1

### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methanol	67-56-1	Methanol	Urine	End of shift (As soon as possible after exposure ceases)	15 mg/l	ACGIH BEI

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### Hand protection

Material : butyl-rubber  
 Break through time : 480 min  
 Glove thickness : 0.3 mm  
 Protective index : Full contact  
 Manufacturer : Butoject® (KCL 897 / Aldrich Z677647, Size M)

Material : Nitrile rubber  
 Break through time : 30 min  
 Glove thickness : 0.4 mm

Protective index	: Splash contact
Manufacturer	: Camatril® (KCL 730 / Aldrich Z677442, Size M)
Manufacturer	: data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
Remarks	: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Eye protection	: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses
Skin and body protection	: Flame retardant antistatic protective clothing.
Hygiene measures	: Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: clear, liquid
Color	: dark blue
Odor	: No data available
Odor Threshold	: No data available
pH	: No data available
Melting point	: No data available
Boiling point/boiling range	: No data available
Flash point	: 52 °F / 11 °C

Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Flammability (liquids)	: No data available
Burning rate	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Vapor pressure	: No data available
Relative vapor density	: No data available
Relative density	: No data available
Density	: 0.800 g/cm <sup>3</sup>
Water solubility	: No data available
Partition coefficient: n- octanol/water	: No data available
Autoignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: Not classified as explosive.
Oxidizing properties	: none
Particle characteristics Particle size	: No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity : Vapors may form explosive mixture with air.

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Chemical stability	: The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	: No data available
Conditions to avoid	: Warming.
Incompatible materials	: Acids Bases Oxidizing agents Alkali metals Strong oxidizing agents Acid chlorides Acid anhydrides Reducing agents
Hazardous decomposition products	: In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Mixture

#### Acute toxicity

Oral: No data available

Acute toxicity estimate Oral - 138.26 mg/kg  
(Calculation method)

Inhalation: No data available

Acute toxicity estimate Inhalation - 4 h - 4.43 mg/l - vapor(Calculation method)

Symptoms: Possible symptoms: , mucosal irritations

Dermal: No data available

Acute toxicity estimate Dermal - 415.05 mg/kg  
(Calculation method)

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

Remarks: Mixture causes serious eye irritation.

#### Respiratory or skin sensitization

Mixture may cause an allergic skin reaction.

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is

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identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

Mixture causes damage to organs. - Eyes, Central nervous system

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

Methyl alcohol may be fatal or cause blindness if swallowed., Cannot be made non-poisonous., Effects due to ingestion may include:, Nausea, Dizziness, Gastrointestinal disturbance, Weakness, Confusion., Drowsiness, Unconsciousness, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence

**Components**

**Methanol**

**Acute toxicity**

Acute toxicity estimate Oral - 100.1 mg/kg

(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Symptoms: Nausea, Vomiting

Acute toxicity estimate Inhalation - 4 h - 3.1 mg/l - vapor

(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Symptoms: Irritation symptoms in the respiratory tract.

Acute toxicity estimate Dermal - 300.1 mg/kg

(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation

Remarks: (ECHA)

Remarks: Drying-out effect resulting in rough and chapped skin.

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation

Remarks: (ECHA)

**Respiratory or skin sensitization**

Sensitisation test: - Guinea pig

Result: negative

(OECD Test Guideline 406)

**Germ cell mutagenicity**

Based on available data the classification criteria are not met.

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female - Bone marrow

Result: negative

**Carcinogenicity**

Did not show carcinogenic effects in animal experiments.

**Reproductive toxicity**

Based on available data the classification criteria are not met.

**Specific target organ toxicity - single exposure**

Causes damage to organs. - Eyes, Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Acute oral toxicity - Nausea, Vomiting

Acute inhalation toxicity - Irritation symptoms in the respiratory tract.

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Eosin G**

**Acute toxicity**

LD50 Oral - Rat - female - > 2,000 mg/kg

(OECD Test Guideline 423)

Inhalation: No data available

LD50 Dermal - Rat - female - > 2,000 mg/kg

(OECD Test Guideline 402)

**Skin corrosion/irritation**

Skin - Rat

Result: No skin irritation - 24 h

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(OECD Test Guideline 402)

**Serious eye damage/eye irritation**

Eyes - Human

Result: Causes serious eye irritation. - 6 h

(OECD Test Guideline 492)

**Respiratory or skin sensitization**

Patch test: - Human

Result: positive

Remarks: (ECHA)

**Germ cell mutagenicity**

No data available

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Methylene blue**

**Acute toxicity**

LD50 Oral - Rat - 1,180 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

**Skin corrosion/irritation**

Remarks: No data available

**Serious eye damage/eye irritation**

Remarks: No data available

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Histidine reversion (Ames)

Test Type: Mammal

Test system: lymphocyte

Remarks: DNA damage

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****Methanol:**

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill)): 15,400.0 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Method: US-EPA
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 18,260 mg/l End point: Immobilization Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): ca. 22,000.0 mg/l Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 201
Toxicity to fish (Chronic toxicity)	:	NOEC (Oryzias latipes (Orange-red killifish)): 7,900 mg/l Exposure time: 200 h Remarks: (External MSDS)
Toxicity to microorganisms	:	IC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 209

**Eosin G:**

Toxicity to fish	: LC50 (Oryzias latipes (Orange-red killifish)): 1,200 mg/l Exposure time: 48 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 100 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	: ErC50 (Desmodesmus subspicatus (green algae)): 51.3 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201
Toxicity to microorganisms	: NOEC (Bacteria): 100 mg/l End point: Growth rate Exposure time: 250 min Remarks: (ECHA)

**Persistence and degradability****Components:****Methanol:**

Biodegradability	: Result: Readily biodegradable. Biodegradation: 99 % Exposure time: 30 d Method: OECD Test Guideline 301D
Biochemical Oxygen Demand (BOD)	: 600 - 1,120 mg/g Incubation time: 5 d Remarks: (IUCLID)
Chemical Oxygen Demand (COD)	: 1,420 mg/g Remarks: (IUCLID)
ThOD	: 1,500 mg/g Remarks: (Lit.)
BOD/ThOD	: 76 % Remarks: Closed Bottle test (IUCLID)
Stability in water	: Hydrolysis: 83 - 91 % at 19 °C(72 h) Remarks: Hydrolyzes on contact with water. Hydrolyzes readily.  Degradation half life: 2.2 yr

Remarks: reaction with hydroxyl radicals  
(IUCLID)

Photodegradation : Degradation (direct photolysis): 50 % Degradation  
half life: 17.2 d

**Eosin G:**

Biodegradability : aerobic  
Concentration: 4 mg/l  
Result: Readily biodegradable.  
Biodegradation: 94.56 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

**Methylene blue:**

Biodegradability : Remarks: No data available

**Bioaccumulative potential**

**Components:**

**Methanol:**

Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 1.0  
Exposure time: 72 d  
Temperature: 68 °F / 20 °C  
Concentration: 5 mg/l

Partition coefficient: n-  
octanol/water : log Pow: -0.77 (77 °F / 25 °C)  
Method: (experimental)  
Remarks: (HSDB)  
Bioaccumulation is not expected.

**Eosin G:**

Partition coefficient: n-  
octanol/water : log Pow: -1.33  
Remarks: Bioaccumulation is not expected.

**Methylene blue:**

Bioaccumulation : Remarks: No data available

**Mobility in soil**

**Components:**

**Methanol:**

Stability in soil : Remarks: Will not adsorb on soil.

**Methylene blue:**

Stability in soil : Remarks: No data available

**Other adverse effects****Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

**Components:****Methanol:**

Results of PBT and vPvB assessment : Substance is not persistent, bioaccumulative, and toxic (PBT).

Additional ecological information : Avoid release to the environment.

**Methylene blue:**

Additional ecological information : No data available

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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**SECTION 14. TRANSPORT INFORMATION****International Regulations****IATA-DGR**

UN/ID No. : UN 1230  
Proper shipping name : Methanol solution  
Class : 3  
Subsidiary risk : 6.1  
Packing group : II  
Labels : Class 3 - Flammable liquids, Division 6.1 - Toxic substances  
Packing instruction (cargo) : 364

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aircraft)  
Packing instruction : 352  
(passenger aircraft)

**IMDG-Code**

UN number : UN 1230  
Proper shipping name : METHANOL SOLUTION

Class : 3  
Subsidiary risk : 6.1  
Packing group : II  
Labels : 3 (6.1)  
EmS Code : F-E, S-D  
Marine pollutant : no

**Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

**National regulation**

**49 CFR Road**

UN/ID/NA number : UN 1230  
Proper shipping name : Methanol SOLUTION

Class : 3  
Packing group : II  
Labels : Class 3 - Flammable liquids  
ERG Code : 131  
Marine pollutant : no

Poison Inhalation Hazard : No

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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**SECTION 15. REGULATORY INFORMATION**

**CERCLA Reportable Quantity**

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards** : Fire Hazard  
Acute Health Hazard  
Chronic Health Hazard



No substances are subject to TSCA 12(b) export notification requirements.

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## SECTION 16. OTHER INFORMATION

### Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA Z-1 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory;

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TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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