Safety Data Sheet

Methanol

Version：V1.0.0.1
Creation Date：2016/06/13
Revision Date：2016/06/13

*Prepared according to GB/T 17519 and GB/T 16483

1 Identification of the chemical and supplier

Product identifier

Product Name	Methanol
Cat No.	20160613-3
Synonyms	Wood alcohol, wood spirit and methyl alcohol
CAS No.	67-56-1
EC No.	200-659-6
Molecular Formula	CH_4O

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

Relevant identified uses	Laboratory chemicals , industrial and pharmaceutical solvent and raw material.
Uses advised against	Please consult manufacturer.

Details of the supplier of the Safety Data Sheet

Name of the company	Changzhou Hegui Siyuan Products Safety Technology Service Co., Ltd.
Address of the company	B-922, Wanda Plazza, No.88 Tongjiang Road, Xinbei Distribution, Changzhou City.
Post code	213022
Telephone number	0519-85150306
Fax number	0519-85150306
E-mail address	msds@hgmsds.com

Emergency phone number

Emergency phone number	0519-85150306

2 Hazards identification

Emergency overview

Liquid. Highly flammable, its vapor and air mixture can form explosive mixture. Toxic if swallowed. Toxic in contact with skin. Toxic by inhalation. Danger of serious damage to health by shortdated exposure.

Hazard classification according to GHS

Flammable Liquids	Category 2
Acute Toxicity – Oral	Category 3
Acute Toxicity – Dermal	Category 3
Acute Toxicity – Inhalation	Category 3
Specific Target Organ Toxicity-Single Exposure	Category 1

Label elements

Hazard pictograms	
Signal word	Danger

Hazard statements

H225	Highly flammable liquid and vapour
H301	Toxic if swallowed
H311	Toxic in contact with skin
H331	Toxic if inhaled
H370	Causes damage to organs

Precautionary statements

◆ Prevention

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.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash ... thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
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 CENTER/doctor, if you feel unwell.
P330	Rinse mouth.
P361	Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P311	IF exposed or concerned: Call a POISON CENTER/doctor.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

◆ Storage

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.

◆ Disposal

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

Hazard description

◆ Physical and chemical hazards

	Highly flammable liquids, its vapor and air mixture can form explosive mixture.

◆ Health hazards

Inhaled	Inhalation of vapours or aerosols (mists, fumes), generated by the product during the course of normal handling, may produce toxic effects. There is strong evidence to suggest that this material can cause, if inhaled once, serious, irreversible damage of organs. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.
Ingestion	Strong evidence exists that exposure to the material may produce serious irreversible damage (other than carcinogenesis, mutagenesis and teratogenesis) following a single exposure by swallowing. Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. Methanol may produce a burning or painful sensation in the mouth, throat, chest, and stomach. This may be accompanied by nausea, vomiting, headache, dizziness, shortness of breath, weakness, fatigue, leg cramps, restlessness, confusion, drunken behaviour, visual disturbance, drowsiness, coma and death.
Skin Contact	Toxic in contact with skin, systemic effects may result following absorption. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Component	Cas No.	EC No.	Concentration (weight percent, %)
Methanol	67-56-1	200-659-6	99.0

4 First aid measures

Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if fell uncomfortable.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if fell uncomfortable.
Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not

	breathing, give artificial respiration and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Advice for protecting the rescuer

1	Remove all sources of ignition and increase ventilation.
2	Avoid contact with skin and eyes.
3	Avoid inhalation of vapor or mist.
4	Use personal protective equipment including respirator.

Special note to the doctor

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Firefighting measures

Extinguishing media

Suitable extinguishing media	Dry chemical, carbon dioxide or alcohol-resistant foam.
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter or spread fire.

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	May emit poisonous fumes on fire.
6	Containers may explode when heated.
7	Fire exposed containers may vent contents through pressure relief valves.
8	May expansion or decompose explosively when heated or involved in fire.

Fire precautions and protective measures

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

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Avoid breathing vapors 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	Ensure adequate ventilation. Remove all sources of ignition.
6	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

7	Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

Environmental precautions

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

Methods and materials for containment and cleaning up

1	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
2	Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
3	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7 Handling and storage

Precautions for handling

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

Precautions for storage

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

8 Exposure controls/personal protection

Control parameters

◆ Occupational Exposure limit values

Component	Standard	Type	Standard value	remark
Methanol	GBZ 2.1-2007	PC-TWA	25 mg/m3	Skin
		PC-STEL	50 mg/m3	

◆ Biological limit values

Biological limit values	No information available

◆ Monitoring methods

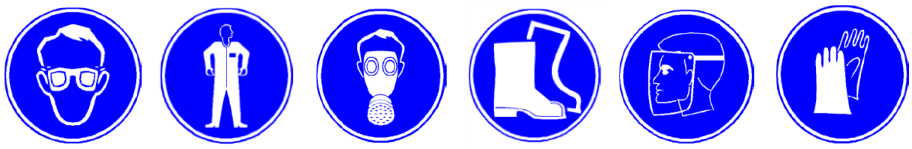
1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

2	GBZ/T 160.1~GBZ/T 160.81-2004 Determination of toxic substances in workplace air(Series standard).

Engineering controls

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

Personal protection equipment

General requirement	
Eye protection	Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).
Hand protection	Wear protective gloves (such as butyl rubber) , passing the tests according to EN 374(EU),US F739 or AS/NZS 2161.1 standard.
Respiratory protection	If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges.
Skin and body protection	Wear fire/flame resistant/retardant clothing and antistatic boots.

9 Physical and chemical properties

Physical and chemical properties

Appearance	Colorless transparent liquid
Odor	Alcohol-like
Odor threshold	No information available
pH	7
Melting point/freezing point(℃)	-98
Initial boiling point and boiling range(℃)	65
Flash point(Closed cup,℃)	12
Evaporation rate	1.9~2.1 (n-butyl acetate=1.0)
Flammability(solid, gas)	Not applicable
Upper/lower explosive limits[%(v/v)]	Upper limit：36-44；Lower limit：5.5-6
Vapor pressure(kPa)	12.3
Vapor density(Air＝1)	1.11
Relative density(Water=1)	0.791
Solubility(mg/L)	Miscible with water
n-octanol/water partition coefficient	-0.82~-0.66
Auto-ignition temperature(℃)	455-464
Decomposition temperature(℃)	No information available
Viscosity	0.597 mPa.s (20℃)

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	In contact with oxidants causes severe reactions, and may cause a fire or explosion.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Oxidants, alkali metals, alkaline earth metals and aluminum.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Component	Cas No.	LD_{50}(oral)	LD_{50}(dermal)	LC_{50}(inhalation,4h)
Methanol	67-56-1	5628mg/kg(Rat)	15800mg/kg(Rabbit)	83.867mg/L(Rat)

Carcinogenicity

ID	Cas No.	Component	IARC	NTP
1	67-56-1	Methanol	Not Listed	Not Listed

Others

Methanol(Component)	
Skin corrosion/irritation	Drying-out effect resulting in rough and chapped skin.
Serious eye damage/irritation	Irritation of mucous membranes.
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	Based on available data, the classification criteria are not met.
STOT-single exposure	Causes damage to organs(Category 1)
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	Genotoxicity in vitro- Ames test result: negative.
Reproductive toxicity(additional)	Based on available data, the classification criteria are not met.

12 Ecological information

Acute aquatic toxicity

Component	Cas No.	Fish	Crustaceans	Algae
Methanol	67-56-1	LC_{50}：24000mg/L (96h)(Fish)	EC_{50}：24500mg/L (48h)	No information available

Chronic aquatic toxicity

Chronic aquatic toxicity	No information available

Others

Persistence and degradability	Readily biodegradable (OECD Test Guideline 301D , 30 d , 99%) ; Biochemical Oxygen Demand (BOD) 600~1120 mg/g (5d) .
Bioaccumulative potential	n-octanol/water partition coefficient :-0.77; bioaccumulation is not expected.
Mobility in soil	No information available.
Results of PBT and vPvB assessment	Methanol does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

13 Disposal considerations

Disposal considerations

Waste chemicals	If medical advice is needed, have product container or label at hand.
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 13.1and 13.2.

14 Transport information

Label

Label	

IMDG-CODE

UN number	1230
UN proper shipping name	METHANOL
Transport hazard class	3
Transport subsidiary hazard class	6.1
Packing group	Ⅱ
Special provisions	279
Limited quantities	1L
Excepted quantities	E2
Marine pollutant (Yes or no)	No
EmS No.	F-E,S-D

ICAO/IATA-DG

UN number	1230
UN proper shipping name	METHANOL
Transport hazard class	3
Transport subsidiary hazard class	6.1

Packing group	Ⅱ
Excepted quantities	E2
Passenger and Cargo Aircraft Limited Quantity Packing Instructions	Y341
Passenger and Cargo Aircraft Limited Quantity Maxium net Quantity per Package	1 L
Passenger and Cargo Aircraft Packing Instructions	352
Passenger and Cargo Aircraft Maxium net Quantity per Package	1 L
Cargo Aircraft Packing Instructions	364
Cargo Aircraft Maxium net Quantity per Package	60 L
Special provisions	A104、A113
ERG code	3P

UN-ADR

UN number	1230
UN proper shipping name	METHANOL
Transport hazard class	3
Transport subsidiary hazard class	6.1
Packing group	Ⅱ
Special provisions	279
Limited quantities	1L
Excepted quantities	E2

Others

Methods of packing	Metal drum, removable head. Metal drum, removable head. Ampoule outside the ordinary wooden box. Threaded glass, metal cover pressure bottles, plastic bottles or metal (cans) outside the ordinary wooden box etc. Threaded glass, metal cover pressure bottles, plastic bottles or metal (cans) outside the ordinary wooden box etc. thread mouth glass bottles, plastic bottles or tinplate barrels (LP), full floor grille boxes, fibreboard or plywood box etc. Packaging as recommended by manufacturer.
Precautions for transport	Strictly prohibited shipping or transportation with acids, alkalis, oxidants, food and food additives etc. 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. Transit should be anti-exposure, rain, high temperature. Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether

	container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.

15 Regulatory information

International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS
Methanol	Listed	Listed	Listed	Listed	Listed	Listed	Listed	Listed

【EINECS】 European Inventory of Existing Commercial Chemical Substances
【TSCA】 United States Toxic Substances Control Act Inventory
【DSL】 Canadian Domestic Substances List
【IECSC】 China Inventory of Existing Chemical Substances
【NZIoC】 New Zealand Inventory of Chemicals
【PICCS】 Philippines Inventory of Chemicals and Chemical Substances
【KECI】 Existing and Evaluated Chemical Substances
【AICS】 Australia Inventory of Chemical Substances

Chinese chemical inventory

Component	A	B	C	D	E	F	G	H	I
Methanol	Listed	Not Listed	Not Listed	Not Listed	Listed	Not Listed	Not Listed	Not Listed	Not Listed

【A】 Catalog of Hazardous Chemicals(2015 Edition), Notice 5th 2015, China State Administration of Work Safety.
【B】 Catalog of Priority Hazardous Chemicals for Environment Management, Notice 33th 2014, Ministry of Environmental Protection of PRC.
【C】 List of Toxic Chemicals Restricted to be Imported/Exported in China, Notice 85th 2013, Ministry of Environmental Protection of PRC.
【D】 Catalog of Stupefacient and Psychotropic Substances(2013Edition), Notice 230th 2013, China Food and Drug Administration.
【E】Catalog of Hazardous Chemicals for Priority Management(First and Second batches), Notice 95th, 2011, Notice 12th 2013, China State Administration of Work Safety.
【F】 List of Ozone Depletion Chemicals Controlled to be Imported/Exported in China (First to Sixth batches), Notice from 2000 to 2012 Ministry of Environmental Protection of PRC.
【G】 Dangerous Chemicals Directory Used to Manufacure Exploder(2011 Edition), Notice 25th Nov. 2011, Ministry of Public Security of PRC1.
【H】 Catalog of National Dangerous Wastes Annex A, Notice 1th 2008, Ministry of Environmental Protection of PRC.
【I】 Catalog of Highly Toxic Chemicals, Notice 142th 2003, China Ministry of Health.

16 Others

Information on revision

Creation Date	2016/06/13
Revision Date	2016/06/13
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: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en.

[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

PC-STEL- Short term exposure limit

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC_{50} - Lethal Concentration 50%

NOEC -No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

BCF - Bioconcentration factor (BCF)

IMDG-International Maritime Dangerous Goods

UN-The United Nations

NFPA-National Fire Protection Association

CMR - Carcinogens, mutagens or substances toxic to reproduction

PC-TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC –Predicted No Effect Concentration

LD_{50} - Lethal Dose 50%

EC_{50} - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ICAO/IATA-International Civil Aviation Organization/International Air Transportation Association

ACGIH-American Conference of Governmental Industrial Hygienists

OECD-Organization for Economic Co-operation and Development

Disclaimer

This Safety Data Sheet (SDS) was prepared according to GB/T16483 and GB/T17519. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user’s reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.