

Product Name: WATER WITH METHANOL - JURONG GREASE PLANT
Revision Date: 19 Aug 2019
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SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: WATER WITH METHANOL - JURONG GREASE PLANT
Product Description: Solvent Mixture

Recommended Use: Recovery/byproduct

COMPANY IDENTIFICATION

Supplier: ExxonMobil Asia Pacific Pte.Ltd. (Company No.: 196800312N)
1 HarbourFront Place
#06-00 HarbourFront Tower One 098633 Singapore

24 Hour Emergency Telephone (1) 609-737-4411 / +1-703-527-3887
Supplier General Contact (65) 6885 8000
FAX (65) 6885 8938

SECTION 2 HAZARDS IDENTIFICATION

This material is hazardous according to regulatory guidelines (see (M)SDS Section 15).

CLASSIFICATION:

Flammable liquid: Category 2.
Acute oral toxicant: Category 4. Acute dermal toxicant: Category 4. Acute inhalation toxicant: Category 4.
Specific target organ toxicant (single exposure): Category 1.

LABEL:

Symbol:



Signal Word: Danger

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Hazard Statements:

Physical: H225: Highly flammable liquid and vapour.

Health: H302: Harmful if swallowed. H312: Harmful in contact with skin. H332: Harmful if inhaled. H370: Causes damage to organs. Eye, Central Nervous system

Precautionary Statements:

Prevention: P210: Keep away from heat/sparks/open flames/hot surfaces. -- No smoking. P240: Ground/bond container and receiving equipment. P241: Use explosion-proof electrical, ventilating and lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P260: Do not breathe mist / vapours. 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. P280: Wear protective gloves and eye / face protection.

Response: P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P308 + P311: IF exposed or concerned: Call a POISON CENTER or doctor/physician. P330: Rinse mouth. P362 + P364: Take off contaminated clothing and wash it before reuse. P370 + P378: In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish.

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

Disposal: P501: Dispose of contents and container in accordance with local regulations.

Contains: METHYL ALCOHOL

Other hazard information:

PHYSICAL / CHEMICAL HAZARDS

Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited.

HEALTH HAZARDS

No additional hazards.

ENVIRONMENTAL HAZARDS

No significant hazards.

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

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|------------------|---|
| SECTION 3 | COMPOSITION / INFORMATION ON INGREDIENTS |
|------------------|---|

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

| Name | CAS# | Concentration* | GHS Hazard Codes |
|----------------|---------|----------------|------------------------------|
| METHYL ALCOHOL | 67-56-1 | <= 15% | H225, H301, H311, H331, H370 |

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4 FIRST AID MEASURES

INHALATION

Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

SKIN CONTACT

Wash contact areas with soap and water.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Alcohol-resistant foam.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Highly flammable. Hazardous material. Firefighters should consider protective equipment indicated in Section 8.

Hazardous Combustion Products: Oxides of carbon, Smoke, Fume

FLAMMABILITY PROPERTIES

Flash Point [Method]: 11°C (52°F) [Estimated]

Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D

Autoignition Temperature: N/A

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable

regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. **Small Spills:** Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Recover by pumping or with suitable absorbent.

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7

HANDLING AND STORAGE

HANDLING

Avoid breathing mists or vapour. Avoid contact with skin. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Do not enter storage areas or confined spaces unless adequately ventilated. Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Prevent small spills and leakage to avoid slip hazard.

Loading/Unloading Temperature: N/D

Static Accumulator: This material is not a static accumulator.

STORAGE

Ample fire water supply should be available. A fixed sprinkler/deluge system is recommended. Do not store in open or unlabelled containers. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Outside or detached storage preferred. Storage containers should be earthed and bonded. Fixed storage containers, transfer containers and associated equipment should be earthed and bonded to prevent accumulation of static charge.

SECTION 8

EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

| Substance Name | Form | Limit/Standard | | | Note | Source | Year |
|----------------|------|----------------|-----------------------|---------|------|----------------|------|
| METHYL ALCOHOL | | STEL | 328 mg/m ³ | 250 ppm | | Singapore PELs | 2006 |
| METHYL ALCOHOL | | TWA | 262 mg/m ³ | 200 ppm | | Singapore PELs | 2006 |
| METHYL ALCOHOL | | STEL | 250 ppm | | Skin | ACGIH | 2019 |
| METHYL ALCOHOL | | TWA | 200 ppm | | Skin | ACGIH | 2019 |

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Adequate ventilation should be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Half-face chemical cartridge respirator

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

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ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9

PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications.

GENERAL INFORMATION

Physical State: Liquid
Colour: Colourless
Odour: Alcohol
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density: N/D
Flammability (Solid, Gas): N/A
Flash Point [Method]: 11°C (52°F) [Estimated]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/A
Boiling Point / Range: 65°C (149°F) - 100°C (212°F)
Decomposition Temperature: N/D
Vapour Density (Air = 1): N/D
Vapour Pressure: [N/D at 20°C]
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/D
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Complete
Viscosity: [N/D at 40 °C]
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A

SECTION 10

STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

MATERIALS TO AVOID: Strong Acids, Strong Bases

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11

TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

| Hazard Class | Conclusion / Remarks |
|--|--|
| Inhalation | |
| Acute Toxicity: No end point data for material. | Slightly Toxic. Based on assessment of the components. |
| Irritation: No end point data for material. | Negligible hazard at ambient/normal handling temperatures. |
| Ingestion | |
| Acute Toxicity: No end point data for material. | Moderately toxic. Based on assessment of the components. |
| Skin | |
| Acute Toxicity: No end point data for material. | Slightly Toxic. Based on assessment of the components. |
| Skin Corrosion/Irritation: No end point data for material. | Negligible irritation to skin at ambient temperatures. Based on assessment of the components. |
| Eye | |
| Serious Eye Damage/Irritation: No end point data for material. | May cause mild, short-lasting discomfort to eyes. Based on assessment of the components. |
| Sensitisation | |
| Respiratory Sensitization: No end point data for material. | Not expected to be a respiratory sensitizer. |
| Skin Sensitization: No end point data for material. | Not expected to be a skin sensitizer. Based on assessment of the components. |
| Aspiration: No end point data for material. | Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. |
| Germ Cell Mutagenicity: No end point data for material. | Not expected to be a germ cell mutagen. Based on assessment of the components. |
| Carcinogenicity: No end point data for material. | Not expected to cause cancer. Based on assessment of the components. |
| Reproductive Toxicity: No end point data for material. | Not expected to be a reproductive toxicant. Based on assessment of the components. |
| Lactation: No end point data for material. | Not expected to cause harm to breast-fed children. |
| Specific Target Organ Toxicity (STOT) | |
| Single Exposure: No end point data for material. | Causes organ damage from a single exposure. Based on assessment of the components. |
| Repeated Exposure: No end point data for material. | Not expected to cause organ damage from prolonged or repeated exposure. Based on assessment of the components. |

OTHER INFORMATION

For the product itself:

Target Organs Single Exposure: Eye, Central Nervous system

Contains:

METHANOL: Human exposure to methanol may result in illness, systemic poisoning, blindness, optic nerve damage and perhaps death, after being ingested, absorbed through the skin or inhaled. Death due to cardiac or respiratory failure has been reported in some cases from consumption of as little as 30 mls. Exposure to high concentrations of methanol has been shown to cause developmental effects in rodent offspring.

IARC Classification:

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = IARC 1

2 = IARC 2A

3 = IARC 2B

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

Material -- Not expected to demonstrate chronic toxicity to aquatic organisms

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND Material not assessed for this transportation mode.

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SEA (IMDG): Material not assessed for this transportation mode.

Marine Pollutant: Not Determined

AIR (IATA): Material not assessed for this transportation mode.

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|-------------------|-------------------------------|
| SECTION 15 | REGULATORY INFORMATION |
|-------------------|-------------------------------|

Material is hazardous as defined by Specification for hazard communication for hazardous chemicals and dangerous goods (Singapore Standard SS586) Part 2:2014 - Globally harmonised system of classification and labelling of chemicals - Singapore's adaptations.

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Listed or exempt from listing/notification on the following chemical inventories (May contain substance(s) subject to notification to the EPA Active TSCA inventory prior to import to USA): AICS, DSL, ENCS, IECSC, KECI, PICCS, TCSI, TSCA

National Laws and Regulations:

- Hazardous Waste (Control of Export, Import and Transit) Act
- Environmental Public Health (Toxic Industrial Waste) Regulations
- Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations
- MPA (Dangerous Goods, Petroleum and Explosives) Regulations

- Environmental Protection and Management Act & Environmental Protection and Management (Hazardous Substances) Regulations

| | |
|-------------------|--------------------------|
| SECTION 16 | OTHER INFORMATION |
|-------------------|--------------------------|

N/D = Not determined, N/A = Not applicable
KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):
H225: Highly flammable liquid and vapor; Flammable Liquid, Cat 2
H301: Toxic if swallowed; Acute Tox Oral, Cat 3
H311: Toxic in contact with skin; Acute Tox Dermal, Cat 3
H331: Toxic if inhaled; Acute Tox Inh, Cat 3
H370: Causes damage to organs; Target Organ, Single, Cat 1

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
No revision information

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most

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