

Material Safety Data Sheet

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■ Serial No. : FM-20001

■ Products Name : 「Field Master」

■ Products Logo Mark : 

■ Purpose : Fuel for Radio Control Model Engine (For Car)

■ 「COSMO RC FUEL」 Products Line-up

「COSMO RC FUEL」 has full line-up of special fuel for each models (R/C Airplane, R/C Helicopter, R/C Car, R/C Boat). The difference of each fuel is based on the percentage of common ingredients(See following ingredients chart) and the ingredients information, handling procedure and remarks are common for all of fuels. To know the detail information about the percentage of ingredients of each fuel, please see “Specification”.

Identification of material

- Single or Mixed: Mixed
- Chemical name: Mixed products of nitro methane, lubricants and additives mainly based on methanol

| Ingredients | Methanol (Methyl alcohol) | Nitro methane | Lubricants (PAG) | Additives (Anti-Rust) |
|----------------------|------------------------------|---------------------------------|---------------------|--------------------------|
| Content | 64% | 20% | 15.6% | 0.4% |
| Chemical | CH ₃ OH | CH ₃ NO ₂ | n/a | n/a |
| Cas No. | 67-56-1 | 75-52-5 | 25322-69-4 | 68411-46-1 |
| Proper Shipping Name | Flammable Liquid n.o.s. | | | |
| UN No. | 1993 | | | |
| UN Class | 3.2/ II | | | |
| HS Code | 38.24.90-000.4 | | | |

Classification of Hazard

- Name of classification:
inflammable liquid, acute toxicity material, self-reactivity material
- Hazardous: The Fire Services Act prescribes Hazardous 4 class 1st oil group class II
It is volatility inflammable liquid, which is easy to inflame and make explosive mixed gas with air. It has the possibility to explode by mixing of Alkali, heating in sealed condition and shock.
- Harmful: Inhalation causes headaches, vomiting, dizziness and etc. Expose in vapor for long time causes disorder of optic nerve, nerve center, respiratory organ, kidney and liver. Repeated contact of liquid to skin causes stimulus, dryness, scaly dermatitis and crack dermatitis.

Emergency and first aid procedures

- Contact eye: Wash eye with large amounts of water for more than 15 minutes and get medical attention immediately.
- Contact skin: Remove contaminated cloth and shoes and wash the burned area with large amounts of water or soap water. If pain is not relieved, get medical attention.
- Inhalation: Immediately remove to fresh air place, keep warm and quiet and get medical attention.
- Ingestion: Drink large amounts of water to vomit and get medical attention. But if patient lose the conscious, don't take anything from mouth.

Measure for fire

- Fire Fighting Procedure:
 1. Shut off the combustion source to the origin of fire.
 2. For early fire, use dry chemical, carbon dioxide, dried sand and etc.
 3. For large-scale fire, use alcohol form. Stick water may expand the fire.
 4. For surrounding fire, move the container to safety place. If it is impossible to move out, cool down with sprinkle water.
 5. When fire extinguishing, extinguish from the windward with protector.
 6. Keep people out surrounding. Extinguisher: Dry chemical, carbon dioxide, dried sand, alcohol foam.

Measure for leak

Remove the ignition source surrounding.

- Large quantity: Keep people out surrounding by roping. Put protector and never work in leeward. After stop the leak with sand and lead it to safety place, collect in empty container as much liquid as possible and prevent runoff into the river and drain.
- Small quantity: Absorb the leak into sand or waste cloth, collect into empty container and wipe a stain with waste cloth completely

Remarks of handling and storage

- Handling:
 1. Don't bring the fire close. It is easy to inflame and its vapor makes explosive mixed gas with air. Don't evaporate.
 2. The vapor from glow fuel is heavier than air and easy to stay. Keep attention to ventilation and fire.
 3. Keep in normal temperature and keep attention for mixing of water and alien substance. Don't mix with other petroleum products and chemicals.
 4. It possibly explodes by mixing of alkali, heating in sealed condition and shock. Keep attention for mixing of alkali and heating and keep out the shock.
 5. Wear electric conductive cloth and shoes.
 6. Keep attention not to contact the liquid to skin and use protection globe. In the case of possibly contacting to the eye, use protection glass.
 7. In the case of possibly inhalation of vapor, use respirator.
 8. Use pump on taking out from container. Don't suck up with mouth using straw. Ingestion causes death.
 9. Keep the container sealed.
 10. After handling, wash hands and eyes enough. Remove contaminated cloth.
 11. When handling large amounts of fuel more than specified quantity, handle in regal factory, warehouse and agency.
- Storage:
 1. Avoid direct ray of the sun and keep in well-ventilated cool place.
 2. Storage with indication of hazardous.
 3. Avoid heat, spark, flame and static electricity.
 4. Electrical used in warehouse must be explosion-resistance and instruments must be ground connected.
 5. Avoid the contact and storage the same place with halogens, alkalis, strong

acids, oxidizable substances.

• Handling of container:

1. Avoid the pressure on container. Pressure causes the crack.
2. Don't weld, heat, drill or cut the container. Residues possibly ignite with explosion.
3. Make full-use of contents of can and dispose after taking off the cap. Disposal must be done according to the proper regulation.

Protection of exposure

• Control density:

n/a as glow fuel for RC engine

• Permissible density:

n/a as glow fuel for RC engine

<Reference> as methanol

• Control density:

200ppm (Bulletin of Ministry of Labor 79th 1988.9.1.)

• Permissible density:

200ppm (260mg/m³) (Japan Society for Occupational Health, 1992)

200ppm (262mg/m³) TLV-TWA (ACGIH, 1991-92)

250ppm (328mg/m³) TLV-STEL

• Facilities: Install ventilator in high vapor density.

• Protector: Use air mask, respirator, protection glass, rubber globe, rubber boots or rubber apron as occasion.

Physical/ Chemical Character

• Appearance: Volatile flammable liquid with light yellow color and irritant odor.

• Vapor pressure: 47-57 kPa (55°C)

• Density: 0.88-0.95g/cm³ (15°C)

• First distillation point: over 63°C (760mmHg)

• Solubility: Soluble in alcohols, insoluble in mineral oil and water.

• Vapor Density: 1.1- 2.1 (estimated) <Air = 1>

Hazardous information (Safety · Reactivity)

• Flash point: 11°C (TAG sealing method)

• Ignition point: over 400°C (estimated)

• Explosion limit: Highest limit null, Lowest limit 6vol% (estimated)

- Flammability: Flammable (Volatile flammable liquid)
- Ignitability: Possibly explosion by mixing alkalis, heating in sealed condition and shock.
- Oxidizability: Oxidizable
- Self-Reactivity • Explosiveness: Possibly explosion by heating and shock
- Stability: Stable
- Reactivity: Avoid the contact with alkali and strong acid.
- Others: Distillation possibly causes explosion.

Harmful information(The case to the human, epidemiological information)

Null as glow fuel for RC engines

<Reference> As methanol

- Stimulant: Weak stimulus for the skin, but long-time contact or repeated contact causes dryness, scaly dermatitis and crack dermatitis.High-density vapor stimulate eye, throat and respiratory organs, but it is weak and temporally.
- Acute toxicity:Acute toxicity by expose of methanol causes the same situation as over drinking alcohol, except for disorder of optic nerve and loss of eyesight.Lethal dose is less than 1g/kg by oral ingestion or 100-250ml by drinking.Methanol effects on mainly nerves, especially optic nerve and retina. The first sign is the dim sight, light oversensitive, which causes headaches,dizziness, tinnitus, nausea, vomiting, stomachache, fatigue and etc.Eyesight disorder sometime is temporary, but returns and advances to the loss of eyesight. Heavy exposure causes loss consciousness, death through lethargic sleep. It is difficult to excrete, which causes 2 or 4 days lethargic sleep.Vapor exposure of methanol causes death within 1-2 hours on 50,000ppm density.
- Chronic toxicity: Repeated exposure of methanol vapor more than 200ppm causes disorder of optic nerve or polyneuritis. The case of optic nerve is possibly loss eyesight by disorder of visual field, headache, loss of central visual. The case of central nerve is headache, malicious intent, dizziness, and loss conscious.Methanol poisoning causes metabolic acidosis and heavy poisoning causes disorder of the kidney and the liver.If the vapor density is less than 200ppm,there are rare poisoning. Stay in 1000ppm in 1 hour causes headache eye stimulus and fatigue.

Influence on environment

Null as glow fuel for RC engine)

<Reference> As methanol

- Decomposability: Good organic decomposability
- Accumulatability: No report
- Toxicity for fish: Toxic for aquatic life. Fatal dose is 17,000mg/L for 24 hours. Toxic limit density Shudomonus fungus 66,000mg/L
- Others: Toxicity for alga 530mg/L, Toxicity for green alga 8,000mg/L

Precautions in disposal

1. Company must dispose by themselves, or depute the disposal to the waste disposal dealers approved by prefectural governor or to the local public entity.
2. Don't dispose in sea, liver, lake, surround of them and drainage way.
3. In the case of incineration of small amount, absorb in sawdust or waste cloth and incinerate by open type incinerator.
4. In the case of no incineration, take active waste disposal.
5. Empty can must be used its contents completely and dispose after take off the cap.
6. Comply with the proper regulations.

Precautions in delivery

1. Use proper container and proper cardboard.
2. Check the leak from the container, load without turn over, dropping and damage and prevent the load collapse.
3. Don't contact to fire nor add the shock and rubbing.
4. In the case of delivery of over amount by truck, put the mark of "Hazardous" in front of car and the back of car and fit the extinguish equipment.
5. Don't deliver with hazardous products and high-pressure gas of the first group (oxidisable solid: materials for gunpowder, etc) and the 6th group (oxidisable liquid: concentrated nitric acid, etc). Comply with the proper regulations.

Applicable regulations

- The Fire Services Act: Hazardous products (4 class 1st oil group)
- The Labor Safety and Sanitary Act: Hazardous products (inflammable products)
- The poisonous Control Act: Poisonous products (acute toxicity products)
- The Ships Safety Act: Inflammable liquids
- The Aviation Act: Inflammable liquid

The Harbor Control Act: Inflammable liquids
The Road Transport Vehicles Act: Hazardous products, explosive liquid
The Sea Pollution Prevention Act: Oil exhaust control
The Sewerage Act: Mineral oil exhaust control
The Water Pollution Prevention Act: Oil exhaust control
The Waste Disposal and Cleaning Act: Industrial waste control (prohibition of spread and effluence)

Others

- *This Material Safety Data Sheet is offered to the dealers of hazardous chemical products for treating safely as reference information.
- *We do our best to write this information, but it doesn't mean the guarantee of the complement and accuracy of information. Every chemical products has unknown toxicity and keep attention to handling.
- *Dealers must handle properly on their own responsibility referring these information. This Data Sheet is not the guarantee.
- *The contents written in this sheet possibly will be changed according to the new knowledge.

Contact(Manufacturer)

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