1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

<table>
<thead>
<tr>
<th>Product Name</th>
<th>WS 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Uses</td>
<td>Industrial solvent.</td>
</tr>
<tr>
<td>Manufacturer/Supplier</td>
<td>TOP Solvent Company Limited</td>
</tr>
<tr>
<td></td>
<td>555/1 Energy Complex Building A, 11th Floor</td>
</tr>
<tr>
<td></td>
<td>Viphavadi Rangsit Road Chatuchak, Bangkok 10900</td>
</tr>
<tr>
<td></td>
<td>Thailand</td>
</tr>
<tr>
<td>Telephone</td>
<td>+66 2 299 0003 or +66 2 797 2993</td>
</tr>
<tr>
<td>Fax</td>
<td>+66 2 797 2983</td>
</tr>
<tr>
<td>Emergency Telephone</td>
<td>+66 2 299 0003 [working hours] or</td>
</tr>
<tr>
<td>Number</td>
<td>+66 38 683090 ext.103 [out of working hours]</td>
</tr>
<tr>
<td>Other Information</td>
<td>TOPSol is a trademark owned by TOP Solvent Company Limited</td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

GHS Classification:
- Flammable liquids, Category 3
- Aspiration hazard, Category 1
- Acute hazards to the aquatic environment, Category 2
- Chronic hazards to the aquatic environment, Category 3

GHS label elements
Symbol(s):
- Flammable
- Aspiration hazard

Signal words: Danger

GHS Hazard Statements:
- Physical Hazards: H226 Flammable liquid and vapor.
- Health Hazards: H304 May be fatal if swallowed and enters airways.
- Environmental Hazards: H401 Toxic to aquatic life. H412 Harmful to aquatic life with long lasting effects.
GHS 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/lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment.

Response

P303+P361+P353 IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P370+P378 In case of fire: Use appropriate media for extinction.
P331: Do NOT induce vomiting.

Storage

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

Disposal

P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

3. COMPOSITION INFORMATION ON INGREDIENTS

Chemical Identity: Low aromatic white spirit, LAWS, Turpentine substitute, Naphtha (petroleum), hydrodesulfurized heavy.

CAS No: 64742-82-1
EINECS No.: 265-185-4

Classification of components according to GHS
Material Safety Data Sheet

4. FIRST AID MEASURES

General Information: Keep victim calm. Obtain medical treatment immediately.

Inhalation: Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

Skin Contact: Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available.

Eye Contact: Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion: If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3° C), shortness of breath, chest congestion or continued coughing or wheezing. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Give nothing by mouth. Do not induce vomiting.

Notes to physician
Most important symptoms/effects, acute & delayed: Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried/cracked appearance. Other signs and symptoms of central nervous system (CNS) depression may include headache, nausea, and lack of coordination. Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.
Auditory system effects may include temporary hearing loss and/or ringing in the ears. Immediate medical attention, special treatment
Causes central nervous system depression. Dermatitis may result from prolonged or repeated exposure. Potential for chemical pneumonitis. Call a doctor or poison control center for guidance.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Specific Hazards: Carbon monoxide may be evolved if incomplete combustion occurs. Will float and can be reignited on surface water. The vapor is heavier than air, spreads along the ground and distant ignition is possible.

Extinguishing Media: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do not discharge extinguishing waters into the aquatic environment.

Unsuitable Extinguishing Media: Do not use water in a jet.

Protective Equipment for Firefighters: Wear full protective clothing and self-contained breathing apparatus.

Other Advice: Keep adjacent containers cool by spraying with water

6. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations.

Personal Precautions, Protective Equipment and Emergency Procedures: Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet.

Environmental Precautions: Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent
from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapor or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

Methods and material for containment and clean up:

For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

Additional Advice:

Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapour may form an explosive mixture with air.

7. HANDLING AND STORAGE

General Precautions:

Avoid breathing vapors or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. On guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

Precautions for safe Handling:

Avoid contact with skin, eyes, and clothing. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<= 1 m/sec until fill pipe submerged.
to twice its diameter, then <= 7 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. The vapor is heavier than air, spreads along the ground and distant ignition is possible. Handle and open container with care in a well ventilated area. Ventilate workplace in such a way that the Occupational Exposure Limit (OEL) is not exceeded. Do not empty into drains.

Conditions for safe Storage:
Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Bulk storage tanks should be diked (bunded). Keep away from aerosols, flammables, oxidizing agents, corrosives and from other flammable products which are not harmful or toxic to man or to the environment. Storage Temperature: Ambient.

Product Transfer:
Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<= 1m/sec until fill pipe submerged to twice its diameter, then <= 7m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. If positive displacement pumps are used, these must be fitted with a non-integral pressure relief valve.

Recommended Materials:
For containers, or container linings use mild steel, stainless steel. For container paints, use epoxy paint, zinc silicate paint.

Unsuitable Materials:
Avoid prolonged contact with natural, butyl or nitrile rubbers.

Container Advice:
Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.

Other Advice:
Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.
Material Safety Data Sheet

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Material</th>
<th>Source</th>
<th>Type</th>
<th>ppm</th>
<th>mg/m³</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,4-Trimethylbenzene</td>
<td>ACGIH</td>
<td>TWA</td>
<td>25 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,3,5-Trimethylbenzene</td>
<td>ACGIH</td>
<td>TWA</td>
<td>25 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>ACGIH</td>
<td>TWA</td>
<td>20 ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional Information: Adequate ventilation to control airborne concentrations below the exposure guidelines/limits.

Appropriate Engineering Controls: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Firewater monitors and deluge systems are recommended. Eye washes and showers for emergency use.

Individual protection measures: Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection: If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN14387. Where respiratory protective equipment is required, use a fullface mask. Where air-filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus.
Hand Protection: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739, AS/NZS:2161) made from the following materials may provide suitable chemical protection: Longer term protection: Viton. Incidental contact/Splash protection: Nitrile rubber. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Eye Protection: Chemical splash goggles (chemical monogoggles).

Body protection: Chemical resistant gloves/gauntlets, boots, and apron. Where risk of splashing or in spillage clean up, use chemical resistant one-piece overall with integral hood.

Thermal hazards: Not applicable

Monitoring Methods: Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

Environmental Exposure Controls: Data not available

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless Liquid.
Odor: White spirit.
Odor threshold: Data not available.

pH: Not applicable.

Boiling point: Typical 150 - 200 °C / 300 -400 °F

Melting / freezing point: Typical -40 °C / -40 °F

Flash point: Typical 42 °C / 108 °F (Abel)
Material Safety Data Sheet

Explosion / Flammability limits in air: 0.7 – 6.5 % (V)
Auto-ignition temperature: 296 °C / 565 °F (ASTM E-659)
Flammability (solid, gas): Yes
Vapour pressure:
- Typical 110 Pa at 0 °C / 32 °F
- Typical 370 Pa at 20 °C / 68 °F
- Typical 1800 Pa at 50 °C / 122 °F
Density: Typical 778.0 kg/m³ at 15 °C / 59 °F (ASTM D-1298)
Water solubility: Insoluble
Solubility in other solvents: Aromatics, Miscible
- Aliphatics, Miscible
n-octanol/water partition coefficient (log Pow): 3.7 – 6.7
Decomposition temperature: Note: Stable under normal conditions of use.
Dynamic viscosity: Data not available.
Kinematic viscosity: 1.08 mm²/s at 25 °C / 77 °F
Vapour density (air=1): Data not available.
Electrical conductivity: Typical 1 pS/m at 20C.
Evaporation rate (nBuAc=1): 0.16 (ASTM D 3539, nBuAc=1)
Volatile organic carbon: 85% (EC/1999/13)
Molecular weight: 140 g/mol

10. STABILITY AND REACTIVITY

Chemical stability: Stable under normal conditions of use.
Conditions to Avoid: Avoid heat, sparks, open flames and other ignition sources. Prevent vapor accumulation.
Incompatible materials: Strong oxidizing agents.
Hazardous Decomposition Products: Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
Possibility of hazardous Reactions: Data not available.
Sensitivity to Static Discharge: Yes, in certain circumstances product can ignite due to static electricity.
11. TOXICOLOGICAL INFORMATION

Information on Toxicological effects

Basis for Assessment : Information given is based on product testing, and/or similar products, and/or components.
Likely routes of exposure : Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.

Acute Toxicity
Acute Oral Toxicity : Low toxicity; LD50 >5000 mg/kg, Rat
Acute Dermal Toxicity : Low toxicity
Acute Inhalation Toxicity : Low toxicity; LC50 greater than near-saturated vapour concentration, 4 hours, Rat
Skin corrosion/irritation : Not irritating to skin. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.
Serious eye damage/irritation : Not irritating to eye.
Respiratory Irritation : Inhalation of vapors or mists may cause irritation to the respiratory system.
Respiratory or skin Sensitization : Not expected to be a sensitizer.
Aspiration hazard : Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
Germ cell mutagenicity : Not mutagenic.
Carcinogenicity : Not expected to be carcinogenic. Tumors produced in animals are not considered relevant to humans.

Reproductive and Developmental Toxicity : Not expected to impair fertility. Not a developmental toxicant.
Specific target organ toxicity - single exposure : May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure : Kidney: caused kidney effects in male rats which are not considered relevant to humans. Central nervous system: repeated exposure affects the nervous system.

12. ECOLOGICAL INFORMATION
Material Safety Data Sheet

Basis for Assessment: The information given below is based on product testing, a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity
- Fish: Toxic; LC/EC/IC50 1-10 mg/l
- Aquatic Invertebrates: Toxic; LC/EC/IC50 1-10 mg/l
- Algae: Toxic; LC/EC/IC50 1-10 mg/l
- Microorganisms: Practically non toxic; LC/EC/IC50 > 100 mg/l

Chronic Toxicity
- Fish: NOEC/NOEL expected to be >0.1 - <= 1.0 mg/l (model data)
- Aquatic Invertebrates: NOEC/NOEL >0.1 - <= 1.0 mg/l

Mobility: Floats on water. Adsorbs to soil and has low mobility.

Persistence/degradability: Readily biodegradable. Oxidized rapidly by photo-chemical reactions in air.

Bioaccumulative potential: Has the potential to bio-accumulate.

Other Adverse Effects: In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

13. DISPOSAL CONSIDERATIONS

Material Disposal: Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.

Container Disposal: Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not, puncture, cut, or weld uncleaned drums. Send to drum recoverer or metal reclaimer.

Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Land (as per ADR classification): Regulated
Class: 3
Material Safety Data Sheet

Packing group : III
Hazard identification no. : 30
UN No. : 1300
Danger label (primary risk) : 3
Proper shipping name : Turpentine substitute
Environmentally Hazardous : Yes

IMDG
Identification number : UN 1300
Proper shipping name : Turpentine substitute
Class / Division : 3
Packing group : III
Marine pollutant : Yes

IATA (Country variations may apply)
UN No. : 1300
Proper shipping name : Turpentine substitute
Class / Division : 3
Packing group : III

Sea (Annex II of MARPOL 73/78 and the IBC code)
Pollution Category : Y
Ship Type : 2
Product Name : White spirit, low aromatics
Special Precaution : Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Chemical Inventory Status
DSL : Listed.
INV (CN) : Listed.
TSCA : Listed.
EINECS : Listed. 265-185-4
KECI (KR) : Listed. KE-25620
16. OTHER INFORMATION

Uses and Restrictions : Raw material for use in the chemical industry. Use only in industrial processes

MSDS Distribution : The information in this document should be made available to all who may handle the product

Disclaimer : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.