1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Butyl Cellosolve Solvent

CAS-No.: 111-76-2

Synonyms: Ethylene glycol monobutyl ether, 2-Butoxyethanol

Recommended use: Primary solvent in solvent-based silk screen printing inks, coupling agent, solvent in household and industrial cleaners

Restrictions on use: No restriction of use

COMPANY IDENTIFICATION

Supplier: Pon Pure Chemicals Group
CHENNAI, TAMILNADU, INDIA

24 Hour Health Emergency
(91) 8939878447
(91) 9444038694

Transportation Emergency Phone
(91) 8939768680

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Place</th>
<th>EMERGENCY TELEPHONE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pon Pure Chemicals Group</td>
<td>India</td>
<td>Day Emergency – 044-26161803-26161809</td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral): Category 4

Acute toxicity (Inhalation): Category 3

Acute toxicity (Dermal): Category 4

Serious eye damage/eye irritation: Category 2

Specific target organ toxicity - single exposure:

Category 1 (Central nervous system, Blood, Kidney, Liver)

Specific target organ toxicity - repeated exposure:

Category 2 (Blood)
GHS Label element

Hazard pictograms

Signal word: Danger

Hazard statements: Harmful if swallowed or in contact with skin. Causes serious eye irritation. Toxic if inhaled. Causes damage to organs (Central nervous system, Blood, Kidney, Liver). May cause damage to organs (Blood) through prolonged or repeated exposure.

Precautionary statements

Prevention: Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/ eye protection/ face protection.

Response: IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of water. Call a POISON CENTER or doctor/ physician if you feel unwell. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Call a POISON CENTER or doctor/ physician.

If eye irritation persists: Get medical advice/ attention. Take off contaminated clothing and wash it before reuse.

Storage: Store in a well-ventilated place. Keep container tightly closed. Store locked up.

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

Other hazards which do not result in classification

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl Cellosolve</td>
<td>111-76-2</td>
<td>&gt;= 99 - &lt;= 100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

If inhaled: If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a medical doctor. Consult a medical doctor after significant exposure. Call a medical doctor or poison control centre.
Immediately.

In case of skin contact:
- Take victim immediately to hospital. If on skin, rinse well with water. If on clothes, remove clothes. If skin irritation persists, call a medical doctor.

In case of eye contact:
- Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed:
- Clean mouth with water and drink afterwards plenty of water. Keep respiratory tract clear. Do NOT give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. Take victim immediately to hospital. If symptoms persist, call a medical doctor. Induce vomiting immediately and call a medical doctor.

General advice:
- Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Symptoms of poisoning may appear several hours later. Do not leave the victim unattended. Consult a medical doctor.

Most important symptoms:
- No information available.

5. FIREFIGHTING MEASURES

Unsuitable extinguishing Media:
- High volume water jet.

Specific hazards during Firefighting:
- Do not allow run-off from fire fighting to enter drains or water courses.

Specific extinguishing Methods:
- Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Fire residues and contaminated fire extinguishing water must be disposed off in accordance with local regulations.

Special protective equipment for firefighters:
- Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
- Use personal protective equipment.
- Ensure adequate ventilation.
- Evacuate personnel to safe areas.
Environmental precautions

- Prevent product from entering drains.
- Prevent further leakage or spillage if safe to do so.
- If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up

- Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling

Advice on safe handling

- Avoid formation of aerosol / Do not breathe vapour's/dust / Avoid contact with skin and eyes. For personal protection see section 8.
- Smoking, eating and drinking should be prohibited in the Application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations.

Storage

Conditions for safe storage

- Prevent unauthorized access.
- Keep in a well-ventilated place.
- Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Observe label precautions.
- Electrical installations / working materials must comply with the technological safety standards.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl</td>
<td>111-76-2</td>
<td>TWA</td>
<td>20 ppm</td>
<td>MY PEL</td>
</tr>
</tbody>
</table>
### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissibility</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butyl Cellosolve™ Solvent</td>
<td>111-76-2</td>
<td>Butoxyacetic acid (BAA)</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>200 mg/g Creatinine</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

### Personal protective equipment

- **Respiratory protection**: In the case of vapour formation use a respirator with an approved filter.
- **Hand protection**: The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- **Eye protection**: Eye wash bottle with pure water. Tightly fitting safety goggles. Wear face-shield and protective suit for abnormal processing problems.
- **Skin and body protection**: Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- **Hygiene measures**: Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**: Liquid
- **Colour**: Colourless

---

Page 5 of 11  MSDS – Butyl Cello solve
Odour: Mild
Odour Threshold: No data available
pH: No data available
Melting point/freezing point: -77 °C
Boiling point/boiling range: 171 °C
Flash point: 61 °C
Evaporation rate: 0.06
Upper explosion limit: 10.6 %(V)
Lower explosion limit: 1.3 %(V)
Vapour pressure: 0.053 kPa (20 °C)
Relative vapour density: No data available
Relative density: No data available
Density: No data available
Solubility(ies)
Water solubility: Soluble
Partition coefficient: n-octanol/water: Pow: 0.83
Auto-ignition temperature: 224 °C
Thermal decomposition: No data available
Viscosity
Viscosity, dynamic: No data available
Viscosity, kinematic: No data available
Molecular weight: 118.2 g/mol

10. STABILITY AND REACTIVITY

Reactivity: Hazardous polymerisation does not occur.
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.
Conditions to avoid: Heat, sparks, flame and build-up of static
11. TOXICOLOGICAL INFORMATION

Acute toxicity

Components:

Butyl Cellosolve Solvent:

Acute oral toxicity: LD50 (Rat): 1,746 mg/kg
Acute inhalation toxicity: LC50 (Rat): 8.8 - 9.6 mg/l
   Exposure time: 1 h
Acute dermal toxicity: LD50 (Rabbit): 135 mg/kg

Skin corrosion/irritation

Components:

Butyl Cellosolve™ Solvent:

Result: No skin irritation (Skin Irritation Index = 0.44)

Serious eye damage/eye irritation

Components:

Butyl Cellosolve™ Solvent:

Species: Rabbit
Result: Causes serious eye irritation.

Respiratory or skin sensitisation

Components:

Butyl Cellosolve™ Solvent:

Exposure routes: Inhalation
Remarks: No data available
Exposure routes: Skin contact
Remarks: No data available

Germ cell mutagenicity

Components:

Butyl Cellosolve™ Solvent:
Germ cell mutagenicity - Assessment: No data available

Carcinogenicity

Components:
Butyl Cellosolve™ Solvent:
Carcinogenicity - Assessment: No data available

Reproductive toxicity

Components:
Butyl Cellosolve™ Solvent:
Reproductive toxicity - Assessment: No data available

STOT - single exposure

Components:
Butyl Cellosolve™ Solvent:
Target Organs: Central nervous system, Blood, Kidney, Liver
Assessment: Causes damage to organs.

STOT - repeated exposure

Components:
Butyl Cellosolve™ Solvent:
Target Organs: Blood
Assessment: May cause damage to organs through prolonged or repeated exposure.

Aspiration toxicity

Components:
Butyl Cellosolve™ Solvent: No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:
Butyl Cellosolve™ Solvent:
Toxicity to fish
: LC50 (Leuciscus idus (Golden orfe)): 1,395 mg/l
Exposure time: 48 h

Toxicity to daphnia and other aquatic invertebrates
: LC50 (Crangon crangon (shrimp)): 775 mg/l
Exposure time: 96 h

Toxicity to algae
: EC50 (Pseudokirchneriella subcapitata (algae)):
911 mg/l Exposure time: 72 h

Toxicity to microorganisms
: LC50: > 1,000 mg/l
Test Type: Bacterial inhibition

Toxicity to fish (Chronic toxicity)
: Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
: Remarks: No data available

**Persistence and degradability**

**Components:**

**Butyl Cellosolve™ Solvent:**

Biodegradability
: Result: Readily biodegradable.

**Bioaccumulative potential**

**Components:**

**Butyl Cellosolve™ Solvent:**

Bioaccumulation
: Bioconcentration factor (BCF): 3
Remarks: Bioconcentration in aquatic organisms is low.

Partition coefficient: n- octanol/water
: Pow: 0.83

**Mobility in soil**

**Components:**

**Butyl Cellosolve™ Solvent:**

Mobility
: Medium: Soil
Remarks: High mobility in soils.

**Other adverse effects**

**Components:**

**Butyl Cellosolve™ Solvent:**

Additional ecological information
: No data available
13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues: Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with Chemical or used container. Send to a licensed waste management company.

Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

14. TRANSPORT INFORMATION

International Regulation
UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Pollution category: Z
Ship type: 3

15. REGULATORY INFORMATION

Classification, Labelling and Safety Data Sheet of Hazardous Chemicals Malaysia Regulation - 2013
Safety, health and environmental regulations/legislation specific for the substance or mixture
The components of this product are reported in the following inventories:
CH INV: On the inventory, or in compliance with the inventory.
TSCA: On TSCA Inventory.
DSL: All components of this product are on the Canadian DSL.
AICS : On the inventory, or in compliance with the inventory.
NZIoC : On the inventory, or in compliance with the inventory.
ENCS : On the inventory, or in compliance with the inventory.
ISHL : On the inventory, or in compliance with the inventory.
KECI : On the inventory, or in compliance with the inventory.
PICCS : On the inventory, or in compliance with the inventory.
IECSC : On the inventory, or in compliance with the inventory.

Inventories
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

16. OTHER INFORMATION
The information and recommendations contained herein are, to the best of Pon Pure Chemicals Group knowledge and belief, accurate and reliable as of the date issued. You can contact Pon Pure Chemicals Group to ensure that this document is the most current available from Pon Pure Chemicals Group. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted.