

## Material Safety Data Sheet

### Section 1 - Chemical Product and Company Identification

*MSDS Name:* (E)-Methyl 4-chloro-3-methoxybut-2-enoate  
*Synonyms:*  
*Company Identification:* PI Chemicals Ltd.  
Room 6-306, Building 2  
1341 Pudong South Road  
Pudong New Area, Shanghai 200212, China  
*Telephone Number:* 86-21-51389368  
*Fax Number:* 86-21-51389367  
*Emergency Number:* 86-21-51389369

### Section 2 - Product Information

*Catalog Number:* PI-11568  
*CAS Number:* 110104-60-4  
*MDL Number:* Not available  
*EC Number:* Not available  
*Purity:* 98.0%

### Section 3 - Physical and Chemical Properties

*Physical state:* Liquid  
*Color:* Colorless and transparent  
*Odor:* Not available  
*Molecular Formula:* C<sub>6</sub>H<sub>9</sub>ClO<sub>3</sub>  
*Molecular Weight:* 164.59  
*Freezing/Melting Point:* Not available  
*Boiling Point:* Not available  
*Flash Point:* Not available  
*Autoignition Temperature:* Not available  
*Refractive Index (n<sub>D</sub>20):* Not available  
*Density:* Not available  
*Decomposition Temperature:* Not available  
*Solubility:* Not available

### Section 4 - Hazards Identification

*Eye:* Causes eye irritation.

*Skin:* Causes skin irritation. Harmful if absorbed through the skin.  
*Ingestion:* May cause irritation of the digestive tract. Toxic if swallowed.  
*Inhalation:* May be harmful if inhaled. Causes respiratory tract irritation.

### ***Section 5 - First Aid Measures***

*Eye:* Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.  
*Skin:* Get medical aid. Flush skin with plenty of water and soap for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops and persists.  
*Ingestion:* Get medical aid immediately. Wash mouth out with water.  
*Inhalation:* Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

### ***Section 6 - Stability and Reactivity***

*Chemical Stability:* Stable under normal temperatures and pressures.  
*Materials to avoid:* Strong oxidizing agents.  
*Conditions to Avoid:* Incompatible materials.  
*Hazardous Decomposition Products:* Carbon monoxide, carbon dioxide, hydrogen chloride.  
*Hazardous Polymerization:* Has not been reported.

### ***Section 7 - Handling and Storage***

*Handling:* Avoid breathing dust, vapor, mist, or gas. Keep container tightly closed. Avoid contact with skin and eyes. Wash thoroughly after handling. Mechanical exhaust required.  
*Storage:* Store in a cool, dry place. Store in a tightly closed container.

### ***Section 8 - Personal Protection***

*Eyes:* Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.  
*Skin:* Wear appropriate protective gloves to prevent skin exposure.  
*Clothing:* Wear appropriate protective clothing to prevent skin exposure.  
*Respirators:* Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

### ***Section 9 - Fire and Explosion Hazard Data***

*General Information:* As in any fire, wear a self-contained breathing apparatus, MSHA/NIOSH

(approved or equivalent) and protective clothing to prevent contact with skin and eyes.

*Extinguishing Media:* Use water spray, dry chemical, carbon dioxide, or appropriate foam.

### ***Section 10 - Accidental Release Measures***

*General Information:* Use proper personal protective equipment as indicated in Section 8.

*Spills/Leaks:* Vacuum or sweep up material and place into a suitable disposal container.

### ***Section 11 - Toxicological Information***

*RTECS#:* CAS#110104-60-4: Not available

*LD50/LC50:* RTECS: Not available.

*Carcinogenicity:* (E)-Methyl 4-chloro-3-methoxybut-2-enoate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

### ***Section 12 - Environmental information***

Not available

### ***Section 13 - Disposal Consideration***

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations.

### ***Section 14 - Transport Information***

*IATA:* This substance is considered to be non-hazardous for transport.

*IMO:* This substance is considered to be non-hazardous for transport.

*RID/ADR:* This substance is considered to be non-hazardous for transport.

### ***Section 15 - Regulatory Information***

#### *European/International Regulations*

European Labeling in Accordance with EC Directives

Hazard Symbols: C

Indication of Danger: Irritant

Risk Phrases:

R 22: Harmful if swallowed.

R 34: Causes burns.

Safety Phrases:

S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 28: After contact with skin, wash immediately with plenty of water.

S 36/39: Wear suitable protective clothing and eye/face protection.

WGK (Water Danger/Protection)

CAS#110104-60-4: Not available

Canada

CAS#110104-60-4: Not available

*US Federal*

*TSCA*

CAS# 110104-60-4 is not listed on the TSCA Inventory. It is for research and development use only.

### ***Section 16 - Additional Information***

*MSDS Creation Date:* March 15, 2006

*Update:* March 24, 2008

*The above information is believed to be accurate and represents the best knowledge available to us currently. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall PI Chemicals, be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, even if PI Chemicals has been advised of the possibility of such damages.*