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**HEALTH HAZARDS**

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HEALTH HAZARDS - The IDLH (Immediately Dangerous to Life or Health) is 50 ppm. HCN is a highly toxic gas with LC<sub>LO</sub> reportedly as follows:

Human inhalation LC<sub>LO</sub> 120 mg/m<sup>3</sup>/1 hour  
Human inhalation LC<sub>LO</sub> 200 mg/m<sup>3</sup>/10 minutes  
Human inhalation LC<sub>LO</sub> 270 ppm/6-8 minutes  
Human inhalation LC<sub>LO</sub> 181 ppm/10 minutes  
Human inhalation LC<sub>LO</sub> 135 ppm/30 minutes

SIGNS AND SYMPTOMS OF EXPOSURE - Weakness, confusion, headache, nausea, collapse.

PRIMARY ROUTES OF ENTRY - Inhalation, skin absorption.

TARGET ORGANS - HCN blocks utilization of delivered oxygen, resulting in rapid cellular asphyxiation.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE – Any respiratory disorder may be aggravated by over-exposure to gas mixtures containing Hydrogen cyanide. Additionally, skin and eye disorder may be aggravated by Hydrogen cyanide exposures.

EXPOSURE LIMITS - ACGIH 1995-96 ceiling 4.7 ppm; OSHA 10 ppm, 11 mg/m<sup>3</sup> skin designation; NIOSH C 4.7 ppm

CARCINOGENICITY DATA - NIOSH RTECS, OSHA, NTP or IARC does not list component gases.

EMERGENCY AND FIRST AID PROCEDURES - Overexposure to HCN is not indicated with intended product use due to the limited quantity of HCN contained in an individual cylinder. Nevertheless, first aid procedure for HCN gas is described here should overexposure somehow occur. Cyanide poisoning is rapidly fatal and prompt emergency treatment by prepared medical personnel is required. Antidote kits for use by medical personnel are available from the Eli Lilly Company as Cyanide Antidote Package M-76 , if physicians, registered nurses, or trained emergency medical technicians are readily available and close by the scene, use of these kits can be crucial for the treatment that should follow first aid measures.

FIRST AID - Remove the victim from exposure. Get medical attention immediately. Apply artificial respiration if the victim is not breathing. Have an assistant break an amyl nitrite pearl in a handkerchief and hold lightly near the victim's nose and mouth for 15 seconds and remove for 15 seconds. This interrupted application of amyl nitrite is important as continuous application may prevent adequate oxygenation. Repeat application five times at 15-second intervals. Persons giving first aid should avoid breathing amyl nitrite vapor. Amyl nitrite pearls should not be over two years old.

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**SAFE HANDLING AND USE**

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HYGIENIC PRACTICES - Avoid breathing gas. Avoid skin contact with gas.

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT - Not Applicable

PROCEDURES FOR SPILL OR LEAK CLEANUP - Ventilate area. Avoid breathing gas.

WASTE DISPOSAL - Do not puncture or incinerate cylinder. Before discarding cylinder, slowly release contents to a safe exhaust. Dispose of cylinder in accordance with local, state and federal regulations.

STORAGE - Store in a cool, dry, well-ventilated area. Do not exceed 120°F.

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**CONTROL MEASURES**

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PERSONAL PROTECTIVE EQUIPMENT - Due to the limited amount of gas in the cylinder and the low release rate employed in instrument calibration, respiratory protection is not indicated under conditions of intended use.

ENGINEERING CONTROLS - Mechanical ventilation is suitable.

WORK PRACTICES - Avoid breathing gas. Avoid skin contact with gas. Use in well-ventilated areas. Follow the calibration procedure detailed in the MSA instruction manual provided with the instrument under calibration.

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WARNING: This is a hazardous chemical product. By following the directions and warnings provided with this product, the hazards associated with the use of this product can be greatly reduced but never entirely eliminated. Mine Safety Appliances Company makes no warranties, expressed or implied, with respect to this product and EXPRESSLY DISCLAIMS THE WARRANTY OF MERCHANTABILITY AND ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. Users assume all risks in handling, using or storing this product.