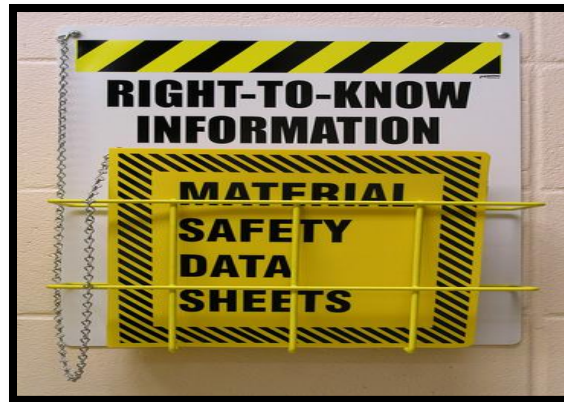


MATERIAL SAFETY DATA SHEET (MSDS)



■ OBJECTIVE OF THE COURSE

1. To make you learn the importance of MSDS
2. To make you learn how to make proper use of the information in MSDS
3. To make you aware of the consequences, if the recommendations are not followed

■ HOW THE INDUSTRY WOULD BENEFIT FROM THE COURSE

1. Working safely with the chemical products
2. Be well aware of what the hazards of the product are & how to use the product safely
3. Be well aware of the information on the use, storage, handling and emergency procedures related to the hazards of the material.
4. Knowing what to do if accidents occur, how to recognize symptoms of overexposure, and what to do if such incidents occur

HC-12a/HC-22a			
MATERIAL SAFETY DATA SHEET			
<small>(Complies with OSHA Construction Standard 29 CFR 1910.1200 Department of Labor)</small>			
IDENTITY: HC-12a HC-22a		Compressed Gas - Flammable NOS Liquefied Petroleum UN 1958 Class 2	
24-Hour Emergency Telephone Number (202) 557-7000		Telephone Number for Information (202) 557-7000	
Date Prepared April 11, 2002		Signature of Preparer (optional) Not Applicable	
Section II: Hazardous Ingredients / Identity Information			
Compressed Hydrocarbon Mixture		OSHA PEL: ACGIH TWA/PEL: OSHA Asphyxiant	Other Limits Recommended 1800 Mg 100%
Section III: Physical / Chemical Characteristics			
Boiling Point HC-12a: 29.0°F / HC-22a: 40°F		Specific Gravity (H ₂ O = 1) 0.982	
Vapor Pressure (PSIA) HC-12a: 73.66 PSIA / HC-22a: 110.07 PSIA		Flash Point Not Applicable	
Vapor Density (Air = 1) 1.700		Evaporation Rate (Butyl Acetate = 1) Not Applicable	
Solubility in Water Soluble		Ignition Temperature (Method used: Heated Metal Surfaces) 1400°F	
Appearance and Odor Colorless gas with natural gas odor		Auto-ignition Temperature 1027°F	
Section IV: Fire and Explosion Hazard Data		Flammable Limits % Upper 0.5; % Lower 9.9	
Flash Point (Method Used) Not Determined		LFL N/A	
Explosion Limits Use in water spray to cool fire-exposed containers, structures, and to protect personnel.		UFL N/A	
Section V: Other Information			
Heavy concentrations of vapor may form flammable mixtures with air. Heavy concentrations of vapor or gas may spread to distant ignition sources and flash back. Vapor or gas may accumulate in low or confined areas. Discharge when vented to flame or hot temperature source. Containers may rupture when heated above their rated service volume.			