

MATERIAL SAFETY DATA SHEET: C₂H₂
SECTION 1: PRODUCT AND COMPANY IDENTIFICATION
Product name: Acetylene
Supplier/ Manufacturer: TOL Gases Ltd
 P.O.BOX 911, Dar es Salaam
 4B Nyerere Road, Tanzania

Phone: +255 22 286004/9
Email: info@tol-gases.co.tz
Website: www.tolgases.com
Section 2: COMPOSITION/ INGREDIENTS INFORMATION

C.A.S	CONCENTRATION %	INGREDIENT NAME	OSHA PEL	ACGIH TLV	OSHA STEL
74-86-2	99.99%	Acetylene	2500 ppm,	Simple Asphyxiant	2662 mg/m

Section 3: HAZARD IDENTIFICATION

Emergency overview:	<p>High pressure gas. Can cause rapid suffocation. Extremely flammable. May form explosive mixtures in air. Immediate fire and explosion hazard exists when mixed with air at concentrations exceeding the lower flammability limit. High concentrations that can cause rapid suffocation are within the flammable range and should not be entered. Avoid breathing gas. Self contained breathing apparatus may be required</p>
Potential Health Effects:	
Inhalation :	<p>May cause anesthetic effects. In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.</p>
Skin contact :	No adverse effect.

Directors:

Eng. H Temu – Chairman (Tanzanian), M.N. Shirima (Tanzanian), A.G.A Masambu (Tanzanian), G. Urasa (Tanzanian), S. Mponji (Tanzanian), D.G: PPF, Treasure Registrar

<p>Ingestion :</p> <p>Chronic Health Hazard:</p> <p>Symptoms :</p>	<p>Ingestion is not considered a potential route of exposure.</p> <p>Not applicable.</p> <p>Exposure to oxygen deficient atmosphere may cause the following symptoms: Dizziness. Salivation. Nausea. Vomiting. Loss of mobility/consciousness.</p>
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Section 4: FIRST AID MEASURES

<p>General advice :</p> <p>Ingestion :</p> <p>Inhalation :</p>	<p>Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.</p> <p>Ingestion is not considered a potential route of exposure.</p> <p>In case of shortness of breath, give oxygen. Move to fresh air. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. Seek medical advice.</p>
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Section 5: FIRE FIGHTING MEASURES

<p>Suitable extinguishing media :</p> <p>Specific hazards :</p>	<p>All known extinguishing media can be used.</p> <p>Upon exposure to intense heat or flame, cylinder will vent rapidly and or rupture violently. Keep containers and surroundings cool with water spray. Extinguish fire only if gas flow can be stopped. If possible, shut off the source of gas and allow the fire to burn itself out. Do not extinguish a leaking gas flame unless</p>
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<p>Special protective equipment: for fire-fighters</p>	<p>absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. Move away from container and cool with water from a protected position. Keep adjacent cylinders cool by spraying with large amounts of water until fire burns itself out. If flames are accidentally extinguished, explosive reignition may occur; therefore, appropriate measures should be taken (e.g. total evacuation to protect persons from cylinder fragments and toxic fumes should a rupture occur).</p> <p>Wear self contained breathing apparatus for firefighting if necessary</p>
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Section 6: ACCIDENTAL RELEASE MEASURES

<p>Personal precautions :</p>	<p>Evacuate personnel to safe areas. Remove all sources of ignition. Never enter a confined space or other area where the flammable gas concentration is greater the 10% of its lower flammable limit. Ventilate the area.</p>
<p>Environmental precautions :</p>	<p>Do not discharge into any place where its accumulation could be dangerous. Should not be released into the environment. Prevent further leakage or spillage if safe to do so.</p>
<p>Methods for cleaning up :</p>	<p>Ventilate the area. Approach suspected leak areas with caution.</p>
<p>Useful information :</p>	<p>Increase ventilation to the release area and monitor concentrations. If leak is from cylinder or cylinder valve, call TOL telephone number. If the leak is in the user's system, close the cylinder valve, safely vent the pressure, and purge with an inert gas before attempting repairs.</p>

Section 7: HANDLING AND STORAGE

Handling:	<p>Acetylene cylinders are heavier than other cylinders because they are packed with a porous filler material and acetone.</p> <p>Never use acetylene in excess of 15 psig pressure.</p> <p>Protect cylinders from physical damage; do not drag, roll, slide or drop.</p> <p>Do not allow storage area temperature to exceed 50°C.</p> <p>Only experienced and properly instructed persons should handle compressed gases.</p> <p>Before using the product, determine its identity by reading the label.</p> <p>Know and understand the properties and hazards of the product before use.</p> <p>When doubt exists as to the correct handling procedure for a particular gas, contact the supplier.</p> <p>Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.</p> <p>When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.</p> <p>Do not remove valve guards.</p> <p>Before connecting the container, check the complete gas system for suitability, particularly for pressure rating and materials.</p> <p>Before connecting the container for use, ensure that back feed from the system into the container is prevented.</p> <p>Ensure the complete gas system is compatible for pressure rating and materials of construction.</p> <p>Ensure the complete gas system has been checked for leaks before use.</p> <p>Employ suitable pressure regulating devices on all containers when the gas is being emitted to systems with lower pressure rating than that of the container.</p> <p>Open valve slowly. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.</p> <p>Close container valve after each use and when empty, even if still connected to equipment.</p> <p>Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier.</p> <p>Close valve after each use and when empty.</p> <p>Do not subject containers to abnormal mechanical shocks which may cause damage to their valve or safety devices.</p> <p>Never attempt to lift a cylinder by its valve protection cap or guard.</p> <p>Do not use containers as rollers or supports or for any other purpose than to contain the gas as supplied.</p> <p>Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.</p> <p>Do not smoke while handling product or cylinders.</p> <p>Never recompress a gas or a gas mixture without first consulting the supplier.</p> <p>Never attempt to transfer gases from one cylinder/container to another.</p> <p>Always use backflow protective device in piping.</p> <p>Purge air from system before introducing gas.</p>
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<p>Storage:</p>	<p>Never use direct flame or electrical heating devices to raise the pressure of a container. Containers should not be subjected to temperatures above 50°C. Prolonged periods of cold temperature below -30°C should be avoided. Ensure equipment is adequately earthed.</p> <p>Containers should be stored in a purpose built compound which should be well ventilated, preferably in the open air. Observe all regulations and local requirements regarding storage of containers. Stored containers should be periodically checked for general condition and leakage. Protect containers stored in the open against rusting and extremes of weather. Containers should not be stored in conditions likely to encourage corrosion. Containers should be stored in the vertical position and properly secured to prevent toppling. The container valves should be tightly closed and where appropriate valve outlets should be capped or plugged. Container valve guards or caps should be in place. Keep containers tightly closed in a cool, well-ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Full and empty cylinders should be segregated. Do not allow storage temperature to exceed 50°C. Smoking should be prohibited within storage areas or while handling product or containers.</p>
<p>Important :</p>	<p>Display "No Smoking or Open Flames" signs in the storage areas. The amounts of flammable or toxic gases in storage should be kept to a minimum. Return empty containers in a timely manner.</p> <p>Containers should be segregated in the storage area according to the various categories (e.g. flammable, toxic, etc.) and in accordance with local regulations. Keep away from combustible material. All electrical equipment in the storage areas should be compatible with flammable materials stored. Containers containing flammable gases should be stored away from other combustible materials. Where necessary containers containing oxygen and oxidants should be separated from flammable gases by a fire resistant partition.</p>

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures:	Provide natural or explosion-proof ventilation that is adequate to ensure flammable gas does not reach its lower explosive limit.
Personal protective equipments	
Respiratory protection :	High concentrations that can cause rapid suffocation are within the flammable range and should not be entered.
Hand protection :	Sturdy work gloves are recommended for handling cylinders. The breakthrough time of the selected glove(s) must be greater than the intended use period.
Eye protection :	Safety glasses recommended when handling cylinders.
Skin and body protection :	Safety shoes are recommended when handling cylinders.
Special instructions for protection and hygiene :	Wear as appropriate: Flame retardant protective clothing. Ensure adequate ventilation, especially in confined areas.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form :	Dissolved gas.
Color :	Colorless gas
Odor :	Poor warning properties at low concentrations.
Molecular Weight :	Garlic-like.
Relative vapor density :	26.04 g/mol
Vapor pressure :	0.899 (air = 1)
Density :	44.00 bar (638.14 psia) at 20 °C
Specific Volume :	0.0011 g/cm ³ at 21 °C Note: (as vapor)
Boiling point/range:	0.9221 m ³ /kg at 21 °C
Critical temperature :	-84.2 °C
Melting point/range :	35.6 °C
Flash point :	-80.8 °C

Auto ignition temperature:	-18 °C
Upper flammability limit:	325 °C
Lower flammability limit:	83 %(V)
Water solubility:	2.4 %(V)
	1.185 g/l

Section 10: STABILITY AND REACTIVITY

Stability :	Stable under normal conditions.
Conditions to avoid :	Cylinders should not be exposed to sudden shock or sources of heat. Heat, flames and sparks. May form explosive mixtures with air and oxidizing agents.
Materials to avoid :	Oxygen, Oxidizing agents. Under certain conditions, acetylene can react with copper, silver, and mercury to form acetylides, compounds which can act as ignition sources. Brasses containing less than 65% copper in the alloy and certain nickel alloys are suitable for acetylene service under normal conditions. Acetylene can react explosively when combined with oxygen and other oxidizers including all halogens and halogen compounds.
Hazardous reactions :	The presence of moisture, certain acids, or alkaline materials tends to enhance the formation of copper acetylides. Unstable. Stable as shipped. Do not use at pressure above 15 psig.

Section 11: TOXICOLOGICAL INFORMATION

Acute Health Hazard Ingestion:	No data is available on the product itself.
Inhalation :	No data is available on the product itself.
Skin :	No data is available on the product itself.

Section 13: DISPOSAL CONSIDERATIONS

<p>Waste from residues / unused products:</p>	<p>Contact supplier if guidance is required. Return unused product in original cylinder to supplier. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor.</p>
<p>Contaminated packaging :</p>	<p>Return cylinder to supplier.</p>