



SC INDUSTRIAL GAS

MANUFACTURERS LTD

MATERIAL SAFETY DATA SHEET

ACETYLENE

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME ACETYLENE DISSOLVED
UN-NO. UN 1001
RECOMMENDED USE COMPRESSED GAS
SYNONYMS ACETYLENE, ETHINE, ETHYNE
SUPPLIER S C INDUSTRIAL GAS MFG LTD
KM 3, IGBO-ETCHE ROAD, ELEME JUNCTION
PORT HARCOURT

CUSTOMER CARE

EMERGENCY CONTACT 08479937, 08033061842

2. HAZARDS IDENTIFICATION

PHYSICAL STATE GAS

EMERGENCY OVERVIEW UNSTABLE. SENSITIVE TO HEAT AND SHOCK. MAY BECOME EXPLOSIVE. FLAMMABLE GAS. SIMPLE ASPHYXIANT. MAY CAUSE SKIN AND EYE IRRITATION. MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION. CONTENTS UNDER PRESSURE. KEEP AT TEMPERATURE BELOW 52 C/125 F.

POTENTIAL ACUTE HEALTH EFFECTS

SKIN/EYE CONTACT WITH RAPIDLY EXPANDING GAS MAY CAUSE BURNS OR FROSTBITE.

INHALATION ACTS AS A SIMPLE ASPHYXIANT
INGESTION INGESTION IS NOT A NORMAL ROUTE OF EXPOSURE OF GASES.
AGGRAVATED MEDICAL CONDITIONS CENTRAL NERVOUS SYSTEM.RESPIRATORY DISORDERS.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS-NO	VOLUME %	CHEMICAL FORMULA
ACETYLENE	74-86-2	95	C2H2F4
ACETONE	67-64-1	5	C3H6O

SPECIFICATION COMPONENTS/IMPURITIES 98.5% MINIMUM
CONTAINS NO OTHER COMPONENTS OR IMPURITIES WHICH WILL INFLUENCE THE CLASSIFICATION OF THE PRODUCT.

4. FIRST AID MEASURES

NO ACTION SHALL BE TAKEN INVOLVING ANY PERSONAL RISK OR WITHOUT SUITABLE TRAINING. IF IT IS SUSPECTED THAT FUMES ARE STILL PRESENT THE RESCUER SHOULD WEAR AN APPROPRIATE MASK OR SELF CONTAINED BREATHING APPARATUS.IT MAY BE DANGEROUS TO THE PERSON PROVIDING AID TO GIVE MOUTH-TO-MOUTH RESUSCITATION.

EYE CONTACT CHECK FOR AND REMOVE ANY CONTACT LENSES. FLUSH EYES WITH PLENTY OF WATER, OCCASIONALLY LIFTING THE UPPER AND LOWER EYELIDS. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT FLUSH SKIN WITH PLENTY OF WATER, WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. TO AVOID THE RISK OF STATIC DISCHARGES AND GAS

	IGNITION, SOAK CONTAMINATED CLOTHING THOROUGHLY WITH WATER. GET MEDICAL ATTENTION IMMEDIATELY.
FROSTBITE	TRY TO WARM UP THE FROZEN TISSUES AND SEEK MEDICAL ATTENTION.
INHALATION	IN HIGH CONCENTRATION MAY CAUSE ASPHYXIATION. SYMPTOMS MAY INCLUDE LOSS OF MOBILITY/CONSCIOUSNESS. VICTIM MAY NOT BE AWARE OF ASPHYXIATION. IN LOW CONCENTRATIONS MAY CAUSE NARCOTIC EFFECTS. SYMPTOMS MAY INCLUDE DIZZINESS, HEADACHE, NAUSEA AND LOSS OF CO-ORDINATION. REMOVE VICTIM TO UNCONTAMINATED AREA WEARING SELFCONTAINEDBREATHING APPARATUS. KEEP VICTIM WARM AND RESTED. CALL MEDICAL ATTENTION. APPLY ARTIFICIAL RESPIRATION IF BREATHINGSTOPPED.
INGESTION	INGESTION IS NOT CONSIDERED A POTENTIAL ROUTE OF EXPOSURE.
PROTECTION OF FIRST-AIDERS	REMOVE ALL SOURCES OF IGNITION.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTY FLAMMABLE

SUITABLE EXTINGUISHER: ALL KNOWN EXTINGUISHERS CAN BE USED.

HAZARDOUS COMBUSTION

PRODUCTS CARBON MONOXIDE

SPECIFIC METHODS WHERE SAFE TO DO SO QUICK ACTION TO CLOSE CYLINDER VALVE MAY HELP TO EXTINGUSH FIRE IN ASSOCIATED EQUIPMENT.

FIRE FIGHTERS IN CONFINED SPACE USE SELF CONTAINED BREATHING APPARATUS.

SENSITIVITY TO MECHANICAL

IMPACT

SELF DE-COMPOSITION OR SELF IGNITION MAY BE TRIGGERED BY HEAT, CHEMICAL REACTION, FRICTION OR IMPACT

SENSITIVITY TO STATIC

DISCHARGE YES

SPECIFIC HAZARDS ARISING FROM

THE CHEMICAL

GASEOUS ACETYLENE IS SPONTANEOUSLY COMBUSTIBLE IN AIR AT 15 PSI AND ABOVE PRESSURE. PURE ACETYLENE IS SHOCK SENSITIVE. IT REQUIRES A VERY LOW IGNITION ENERGY SO THAT FIRES WHICH HAVE BEEN EXTINGUISHED WITHOUT STOPPING THE FLOW OF GAS CAN EASILY RE-IGNITE WITH POSSIBLE EXPLOSIVE FORCE.

FIRES INVOLVING ACETYLENE OCCUR OCCASIONALLY AT FUSIBLE PRESSURE RELIEF PLUGS AT THE TOP AND BOTTOM OF CYLINDER. IF THE FLAME IS LARGE, BURNING FROM A FUSIBLE PLUG, DO NOT TRY TO PUT IT OUT UNLESS THE CYLINDER IS OUTDOORS OR IN A VERY WELL VENTILATED AREA FREE FROM SOURCE OF IGNITION. USUALLY IT IS VERY DIFFICULT TO EXTINGUISH LARGE FIRES BECAUSE THE ESCAPING ACETYLENE MAY RE-IGNITED BY ADJACENT IGNITION SOURCES, THEREBY POSSIBLY CREATING CONFINED SPACE EXPLOSION. KEEP CYLINDERS COOL WITH WATER SPRAY.

CONTINUE TO COOL FIRE EXPOSED CYLINDERS UNTIL FLAMES ARE EXTINGUISHED. CYLINDERS MAY RUPTURE UNDER EXTREME HEAT. DAMAGED CYLINDERS SHOULD BE HANDLED ONLY BY SPECIALISTS.

PRECAUTIONS FOR FIREFIGHTERS

FIGHT FROM MAXIMUM DISTANCE OR USE UNMANNED HOSE HOLDERS OR MONITOR NOZZLES. DO NOT DIRECT

WATER AT SOURCE OF LEAK OR SAFETY DEVICES.
WITHDRAW IMMEDIATELY IN CASE OF RISING SOUND FROM VENTING SAFETY DEVICES OR DISCOLORATION OF CYLINDER. FOR MASSIVE FIRE, USE UNMANNED HOSE HOLDERS OR MONITOR NOZZLES, IF THIS IS IMPOSSIBLE WITHDRAW FROM AREA AND LET FIRE BURN.
IF POSSIBLE, STOP THE FLOW OF GAS. DO NOT EXTINGUISH THE FIRE UNTIL THE SUPPLY IS SHUT OFF AS OTHERWISE AN EXPLOSIVE-IGNITION MAY OCCUR. IF THE FIRE EXTINGUISHED AND THE FLOW OF GAS CONTINUES, USE INCREASED VENTILATION TO PREVENT BUILD-UP OF EXPLOSIVE ATMOSPHERE.
VAPOURS MAY FORM EXPLOSIVE MIXTURES WITH AIR. USE WATER SPRAY TO COOL SURROUNDING CYLINDERS. BE CAUTIOUS OF A BOILING LIQUID EVAPORATING VAPOUR EXPLOSION, IF FLAME IS IMPINGING ON SURROUNDING CYLINDERS.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS ELIMINATE ALL IGNITION SOURCES – NO SMOKING, FLARES, SPARKS OR FLAMES IN IMMEDIATE AREA. KEEP UNNECESSARY PERSONNEL AWAY. ALL EQUIPMENT USED WHEN HANDLING THE PRODUCT MUST BE GROUNDED. WEAR SELF-CONTAINED BREATHING APPARATUS WHEN ENTERING AREA UNLESS ATMOSPHERE IS PROVED TO BE SAFE. NEVER ENTER A CONFINED SPACE OR OTHER AREA WHERE THE CONCENTRATION IS GREATER THAN 10%. SHUT OFF GAS SUPPLY IF THIS CAN BE DONE SAFELY. ISOLATE AREA UNTIL GAS HAS DISPERSED.

CLEAN UP METHODS VENTILATE AREA

LEAK NOT IGNITED – CYLINDER NOT HOT

CHECK TO MAKE SURE THE CYLINDER IS NOT GETTING HOT (USING THE BACK OF YOUR BARE HAND)
CHECK THE VALVE IS PROPERLY CLOSED USING MODERATE FORCE (HAND TIGHT)
DO NOT TRY TO TIGHTEN THE CYLINDER VALVE IN THE BODY OF THE CYLINDER OR TAMPER WITH SAFETY DEVICES.

IF THE LEAK PERSISTS

EXTINGUISH ALL IGNITION SOURCES.
EVACUATE PERSONNEL FROM THE AREA.
ENSURE MAXIMUM VENTILATION BY OPENING ALL DOORS AND WINDOWS.
TAKE THE CYLINDER OUTSIDE TO A WELL VENTILATED AREA, IF THIS CAN BE DONE SAFELY.
WARN EVERYONE IN THE AREA OF A GAS LEAK GIVING PRIORITY TO THOSE DOWN WIND.

IF THE CYLINDER SHOWS SIGN OF HEATING

DO NOT MOVE THE CYLINDER OR OPEN THE VALVE.
EVACUATE PERSONNEL TO A SAFE LOCATION.
CALL THE EMERGENCY STAFF AND FIRE BRIGADE.

LEAK IGNITED (CYLINDER NOT GETTING HOT)

EXTINGUISH ALL IGNITION SOURCES.
EXTINGUISH THE FLAME WITH A DRY POWDER EXTINGUISHER.
CLOSE THE CYLINDER VALVE.
CHECK THE CYLINDER WITH THE BACK OF YOUR BARE HAND FOR SIGNS OF HEATING.

7. HANDLING AND STORAGE

HANDLING

USE EXPLOSION –PROOF/FLAME-PROOF ELECTRICAL FITTINGS (VENTILATOR, LIGHTING, MOTORS AND MATERIAL HANDLING)

NEVER USE COPPER MATERIAL (PIPING, GASKET, MACHINED COMPONENTS).

IT IS CRUCIAL THAT FUSE PLUGS AT TOP AND BOTTOM OF THE CYLINDER BE INSPECTED.

NEVER ATTEMPT TO LIFT A CYLINDER BY ITS VALVE OR VALVE PROTECTION CAP.

PROTECT CYLINDERS FROM PHYSICAL DAMAGE; DO NOT DRAG, ROLL, SLIDE OR DROP. WHEN MOVING CYLINDERS, EVEN FOR SHORT DISTANCE, USE CYLINDER TROLLY.

USE BACK FLOW PREVENTIVE DEVICE (FLASH BACK ARRESTOR) IN PIPING.

USE AN ADJUSTABLE STRAP WRENCH TO REMOVE OVER-TIGHT OR RUSTED CAPS. NEVER INSERT AN OBJECT (WRENCH, SCREWDRIVER, PLYER, PRY BAR) INTO VALVE CAP OPENINGS.

NEVER PUT CYLINDERS INTO TRUNKS OF CAR OR UNVENTILATED AREAS OF PASSENGER VEHICLES.

NEVER STRIKE AN ARC ON A COMPRESSED GAS CYLINDER OR MAKE A CYLINDER A PART OF AN ELECTRICAL CIRCUIT.

IF A CYLINDER HAS BEEN TRANSPORTED HORIZONTALLY, STAND IT UPRIGHT FOR A MINIMUM OF 1 HOUR PRIOR TO USE.

STORAGE

CYLINDERS SHOULD BE STORED UPRIGHT WITH VALVE PROTECTION CAP IN PLACE AND FIRMLY SECURED TO PREVENT FALLING.

STORE IN COOL, DRY, WELL-VENTILATED AREA OF NON-COMBUSTIBLE CONSTRUCTION.

STORE OXYGEN AND ACETYLENE SEPARATED AND IF NOT THERE SHOULD BE A NON-COMBUSTIBLE PARTITION OF AT LEAST 5 FT HIGH.

DO NOT STORE THE CYLINDERS ON THEIR SIDE. THIS MAKES THE ACETYLENE LESS STABLE AND LESS SAFE, AND INCREASES THE LIKELIHOOD OF SOLVENT, ACETONE LOSS RESULTING IN DECOMPOSITION.

STORE AT TEMPERATURE BELOW 52 C/125 F. EMPTY AND FULL CYLINDERS SHOULD BE SEGREGATED.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

PERSONAL PROTECTION ENSURE ADEQUATE VENTILATION.

DO NOT SMOKE WHILE HANDLING THE PRODUCT.

WEAR SUITABLE HAND, BODY AND HEAD PROTECTION.

ENGINEERING MEASURES

EXPLOSION PROOF VENTILATION SYSTEMS LOCAL EXHAUST VENTILATION TO PREVENT ACCUMULATION OF HIGH CONCENTRATIONS AND MAINTAIN AIR-OXYGEN LEVELS AT OR ABOVE 19.5%.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	COLOURLESS	ODOR	SLIGHT GARLIC
MOLECULAR WEIGHT	26.04	AUTOIGNITION	296 C/565 F
VAPOUR DENSITY	0.9(AIR=1)	FLAMMABILITY	2.4 – 88 % IN AIR
BOILING POINT	-83.8 C/-118.8 F	FREEZING POINT	-80.6 C/-113 F
WATER SOLUBILITY	1185mg/l	VAPOUR PRESSURE	635 psi @ 21.1 C

10. STABILITY AND REACTIVITY

STABILITY

UNSTABLE –SHOCK SENSITIVE IN THE LIQUID STATE. DO NOT ALLOW FREE GAS(OUTSIDE OF CYLINDER) EXCEED 15 psi. DO NOT EXPOSE CYLINDERS TO SUDDEN SHOCK OR HEAT. ACETYLENE WILL DECOMPOSE VIOLENTLY WITH CYLINDER FAILURE.

INCOMPATIBILITY OXIDIZING AGENTS. HALOGENS, COPPER, HALOGENATED COMPOUNDS. SILVER, MERCURY, BRASS CONTAINING >66% COPPER AND BRAZING MATERIALS CONTAINING SILVER OR COPPER.

CONDITIONS TO AVOID HEAT, FLAMES AND SPARKS.

POLYMERIZATION TEMPERATURES AS LOW AS 121 C/250 F AT HIGH PRESSURE OR AT LOW PRESSURE IN THE PRESENCE OF A CATALYST ARE SUFFICIENT TO INITIATE A POLYMERIZATION REACTION. THE HAZARD IS THAT THE POLYMERIZATION NORMALLY LIBERATES HEAT AND MAY LEAD TO IGNITION AND DECOMPOSITION OF ACETYLENE IF CONDITIONS PERMIT.

11. TOXICOLOGICAL INFORMATION

CHRONIC EFFECTS MAY CAUSE DAMAGES TO THE FOLLOWING ORGANS; UPPER RESPIRATORY TRACT, CENTRAL NERVOUS SYSTEM.

INHALATION HIGH CONCENTRATIONS (10-20% IN AIR) CAUSE SYMPTOMS SIMILAR TO THAT OF BEING INTOXICATED.

12. ECOLOGICAL INFORMATION

GENERAL NO KNOWN ECOLOGICAL DAMAGE CAUSED BY THIS PRODUCT.

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME ACETYLENE, DISSOLVED

UN Nr. UN 1001

HAZARD CLASS 2.1

AVOID TRANSPORT ON VEHICLES WHERE THE LOAD SPACE IS NOT SEPARATED FROM THE DRIVER'S COMPARTMENT.

ENSURE VEHICLE DRIVER IS AWARE OF THE POTENTIAL HAZARDS OF THE LOAD AND KNOWS WHAT TO DO IN THE EVENT OF AN ACCIDENT OR AN EMERGENCY. THE LOAD SPACE SHOULD HAVE ADEQUATE VENTILATION.

15. REGULATORY INFORMATION

EC CLASSIFICATION R5/R6/F+/R12.

SYMBOLS LABEL 2.1: FLAMMABLE GAS.

RISK PHRASES R5 HEATING MAY CAUSE AN EXPLOSION.
R6 EXPLOSIVE WITH OR WITHOUT CONTACT WITH AIR.
R12 EXTREMELY FLAMMABLE.

SAFETY PHRASES S9 KEEP CONTAINER IN WELL VENTILATED PLACE.
S16 KEEP AWAY FROM IGNITION SOURCES – NO SMOKING.
S33 TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGES.

16. OTHER INFORMATION

ENSURE ALL NATIONAL/LOCAL REGULATIONS ARE OBSERVED.

ENSURE OPERATORS UNDERSTAND THE FLAMMABILITY HAZARDS.

THE HAZARD OF ASPHYXIATION IS OFTEN OVERLOOKED AND MUST BE STRESSED DURING OPERATOR TRAINING.

USERS OF BREATHING APPARATUS MUST BE TRAINED.

ALTHOUGH REASONABLE CARE HAS BEEN TAKEN IN THE PREPARATION OF THIS

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