

# **Electronic Specialty Gases (ESG) Safety** -Toxic Gases

#### **Overview:**

Electronic Specialty Gases (ESGs) are used to manufacture semiconductor, solar cells, liquid crystal displays etc. These gases are supplied either as pressurized gases or liquefied gases. Uncontrolled release of these gases can lead to severe injury and/or property damages. Toxic gases can exist in acidic, alkaline, oxidizers and metal hydride forms.

### **Understand the Hazards:**

#### **Health Hazards (GHS)**







Many of these toxic gases possess more than one hazard due to the inherent physical properties, biological and chemical reactivity. Always refer to Safety Datasheet from the manufacturer to understand the hazards and recommendation for safe handling.

## **Route of Entry**











**Acute Toxicity** 





Inhalation

Absorption/ Skin contact/ Ingestion

Can lead to rapid death

**Deterioration of health** 











Ventilation

**Hazard Class** 

**Gas Leak Detection** 

**Valve Protection** Cap

**Use Abatement** System/ Exhaust

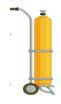
# Safe Storage and Use:







**Restrain Cylinders** 



**Use Cylinder Trolley** 



Always use new gaskets for connection

# **Operational Safety for Personnel:**







Risk **Assessment** 



**Training and** Competency



Safety Shoes



Safety **Glasses** 



Suitable Hand **Gloves** 



**Self Contained Breathing Apparatus** 



Chemical **Protective** Clothing



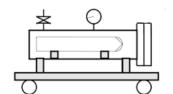
Emergency **Response Plan** 



**Emergency** Eye Wash & Shower



**Portable Gas Leak Detector** 



**Emergency Response Containment Vessel** (ERCV)

Refer to AIGA 018 Safe Handling of Electronic Specialty Gases

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