SECTION 1: Product and Company Identification

1.1 Product identifier

Product name	:	Air
Trade name	:	Compressed air

1.2 Other means of identification

Chemical Name	:	Air
Chemical Formula	:	Not available.

1.3 Recommended use and restrictions on use

Product use	:	Semiconductor Processes Industrial & Professional use Synthetic/Analytical chemistry Photovoltaic Processes

1.4 Details of supplier of the safety data sheet

Company identification	:	Iwatani Corporation (Singapore) Pte. Ltd.
Address	:	6 Shenton Way, OUE Downtown 2 #13-11, Singapore 068809
Phone	:	+65 6862 2111

1.5 Emergency contact

Emergency phone number	:	+65 6220 8347

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Physical hazards	:	Gases under pressure-compressed gas.
Characteristic	:	Non-Flammable.
Acute toxicity (inhalation)	:	Not applicable.
Skin corrosion/irritation	:	Not applicable.
Serious eye damage/eye irritation	:	Not applicable.
Acute aquatic toxicity	:	Not applicable.

2.2 GHS label elements, including precautionary statements

Pictogram(s) :

Signal word(s)	:	Warning
Hazard statement(s)	:	H280 – Contains gas under pressure; may explode if heated
Precautionary statements		
Prevention	:	None.

Response	:	None.
Storage	:	P403+P410 - Store in a well-ventilated place. Protect from sunlight.
Disposal	:	None.

2.3 Other hazards which do not result in classification

Other hazards	:	High pressure gas.

SECTION 3. Composition/Information on ingredients

3.1 Substances / 3.2. Mixture

Substance name	Contents	CAS No.
Air	100 %	132259-10-0

SECTION 4. First-aid measures

4.1 Description of first aid measures

Inhalation	:	Remove victim to uncontaminated are wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
Skin contact	:	Adverse effects not expected from this product.
Eye contact		Adverse effects not expected from this product.
Ingestion	:	Ingestion is not considered a potential route of exposure.

SECTION 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	All known extinguishing media can be used.
Unsuitable extinguishing media	:	None.

5.2 Special hazards arising from the substance or mixture

Specific hazards	:	Exposure to intense heat or flame will cause cylinder to vent rapidly and/or rupture violently. It supports combustion.
Hazardous combustion products	:	None.

5.3 Advice for fire-fighters

Specific methods	:	Move container away or cool with water from a protected position. If possible, stop flow of product.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Firefighters must use standard protective equipment including flame retardant

coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Guideline:
EN 469 - Protective clothing for firefighters. Performance requirements for protective clothing for firefighting.
EN 15090 - Footwear for firefighters.
EN 659 - Protective gloves for firefighters.
EN 443 - Helmets for fire fighting in buildings and other structures.
EN 137 - Respiratory protective devices - Self-contained open circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate area.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Ventilate area or move cylinder to well-ventilated area.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so.

6.3 Methods and materials for containment and cleaning up

Provide adequate ventilation.

Additional advice

Stop the flow of product if possible. If leak is from cylinder or cylinder valve, call the emergency telephone number. If the leak is in the user's system, close the cylinder valve and vent the pressure safely before attempting repairs.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Cylinders should be stored upright with valve protection cap in place and prevent falling or being knocked over. Use suitable equipment rated for cylinder pressure.
Protect cylinders from physical damaged. Only experienced and properly instructed persons should handle compressed gases / cryogenic liquids.
Determine its identity by reading the label provided. Know and understand the properties and hazards of product before use. Contact the supplier when doubt exists as to the correct handling procedure for a particular gas. Do not remove or deface the labels provided by the supplier.
Use a cart (trolley, hand truck, etc.) when moving the cylinders even for short distances. Valve protection caps should be kept in place until container has been secured properly and is ready for use.
Check the complete gas system for suitability and leaks before connecting the container for use. Employ suitable pressure regulating devices on all containers when the gas is being emitted to system with lower pressure rating than of the container. Do not insert any object into valve cap as damaging of valve may cause leakage. Discontinue using cylinder if user experiences difficulty operating cylinder valve and contact the supplier.
Close valve after each use and never attempt to repair or modify container valves or safety relief devices. Do not attempt to lift the cylinder by its valve protection cap. Do not smoke while handling the product and never re-

compress a gas or gas mixture without consulting the supplier. Do not transfer gases from one cylinder to another. Do not use direct flame or electrical heating devices to raise the pressure of the container.

7.2 Conditions for safe storage, including any incompatibilities

Containers should be stored in a cool and well-ventilated compound preferably in the open air. Full containers should be stored so that oldest stock is used first.
Observe all regulations and local requirements regarding storage of containers. Protect containers against rusting, corrosion and extremes of weather.
Store containers in location free from fire risk and away from sources of heat and ignition.
Full and empty cylinders should be segregated. Storage temperature should not exceed 50 °C (122°F) and cold temperature below -30 °C (-20°F).
Containers should be segregated in the storage area according to various categories and in accordance with local regulations.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters/Occupational exposure limits

None of the components have assigned exposure limits.

8.2 Appropriate engineering control measures

Provide adequate general and local exhaust ventilation.
System under pressure should be checked for leakages regularly.

8.3 Personal protection

Individual protection measures, such as personal protective equipment (PPE)		A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered: Protect eyes, face and skin from liquid splashes. PPE compliant to the recommended EN/ISO standards should be selected
Hand protection	:	Wear working gloves when handling gas containers. Standard EN 388 – Protective gloves against mechanical risk.
Eye/face protection	:	Wear safety glasses with side shields. Standard EN 166 – Personal eye-protection – specifications. Provide readily accessible eye wash stations and safety showers.
Skin and Body protection	:	Wear safety shoes while handling containers. Standard EN ISO 20345 Personal protective equipment - Safety footwear
Hygiene measures	:	Ensure adequate ventilation especially in confined areas.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	Gas
Colour	:	Colourless.
Odour	:	None.

Odour threshold	:	No data available.
pH	:	Not applicable.
Melting point	:	No data available.
Freezing point	:	No data available.
Boiling point	:	-194.3 °C (-318 °F)
Flash point	:	Not applicable.
Critical Temperature	:	No data available.
Flammability (solid, gas)	:	This product is not flammable.
Lower explosive limit	:	Not applicable.
Upper explosive limit	:	Not applicable.
Vapour pressure	:	Not applicable.
Vapour density (air=1)	:	1
Gas Density	:	0.0013 g/cm^3 (21 °C)
Molecular mass	:	28.96 g/mol
Solubility	:	Water- Not known but considered to have low solubility.
Viscosity	:	Not applicable.
Partition coefficient: n-octanol/water	:	Not applicable.
Evaporation rate	:	Not applicable.
Decomposition temperature	:	No data available.
Autoignition temperature	:	No data available.

Section 10. Stability and reactivity

10.1 Reactivity
Not reactive under normal conditions.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
No data available.

10.4 Conditions to avoid
No data available.

10.5 Incompatible materials
No reaction with any common materials in dry or wet conditions.

10.6 Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11. Toxicology information

11.1 Information on toxicological effects

No known toxicological effects from this product.

SECTION 12. Ecological information

12.1 Ecotoxicity

No ecological damage caused by this product.

12.2 Persistence and degradability

Not established.

12.3 Bioaccumulative potential

Not established.

12.4 Mobility in soil

No additional information available.

SECTION 13. Disposal information

13.1 Disposal methods

Waste disposal recommendations	:	Dispose of content/container with local, regional, national and international regulations. Contact supplier materials if guidance is required. Return unused product in original cylinder to supplier.
Contaminated packaging	:	Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Iwatani for proper disposal.

SECTION 14. Transport information

14.1 UN number

: UN1002

14.2 UN proper shipping name

: AIR, COMPRESSED

14.3 Transport Hazard Class(es)

UNRTDG (United Nations Recommendations Transport Dangerous Goods)

Class : 2.2

Subsidiary risk : Not applicable.

IATA-DGR (International Air Transport Association – Dangerous Goods)

Class : 2.2
Subsidiary risk : Not applicable.

IMDG (International Maritime Dangerous Goods) – Code

Class : 2.2
Subsidiary risk : Not applicable.

14.4 Packing group

Not assigned by regulation.

14.5 Environmental hazards

None.

14.6 Special precaution for user

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.
Before transporting product containers:

- Ensure there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.

SECTION 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Restrictions on use : None.
Other information, restriction and prohibition regulations : Ensure all national/local regulations are observed.
Applicable national regulations : Safety, health and environmental regulations/legislation specific for the substance or mixture are observed.

SECTION 16. Other information

16.1 Other information

Indication of changes : Ensure all national/local regulations are observed.
Disclaimer of liability : Before using this product in any new process or experiment, a thorough material combability and safety study should be carried out. Details given in this document are believed to be correct a the time of going to press. Whilst proper care has

been taken in the preparation of this document, no liability for injury or damage resulting from its use ca be accepted.

End of Safety Data Sheet