1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY/UNDERTAKING

Identification of the substance/preparation	:	SYNTHETIC AIR
Other means of identification	:	Compressed air
Use of the Substance/Mixture	:	General Industrial.
Restrictions on Use	:	No data available.
Manufacturer/Importer/Distributor	:	Versum Materials Singapore Pte. Ltd. 2 International Business Park #03-24, The Strategy Singapore 609930 Toll Free No: 800 448 1755
Email Address – Technical Information	:	techinfo@versummaterials.com
Telephone	:	800 448 1755
Emergency telephone number (24h)	:	800-101-2201 / +(65)-31581349

2. HAZARDS IDENTIFICATION

GHS classification

Gases under pressure - Compressed gas.

GHS label elements

Hazard pictograms/symbols

Signal Word: Warning

Hazard Statements:

H280:Contains gas under pressure; may explode if heated.

Precautionary Statements:

Storage : P403:Store in a well-ventilated place.

Other hazards which do not result in classification

High pressure gas.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture : Substance

Components	Chemical formula	CAS Number	Concentration (Volume)
Air	Not Available	132259-10-0	100 %

Concentration is nominal. For the exact product composition, please refer to technical specifications.

4. FIRST AID MEASURES

Eye contact : In case of direct contact with eyes, seek medical advice.

Skin contact : Adverse effects not expected from this product.

Ingestion : Ingestion is not considered a potential route of exposure.

Inhalation : Move to fresh air.

Notes to physician

Treatment : If exposed or concerned: Get medical attention/advice.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : All known extinguishing media can be used.

Specific hazards : Can support combustion. Upon exposure to intense heat or flame, cylinder will vent rapidly and or rupture violently. Move away from container and cool with water from a protected position. If possible, stop flow of product. Keep adjacent cylinders cool by spraying with large amounts of water until the fire burns itself out.

Special protective equipment for fire-fighters : Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters. Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Ventilate the area.

Environmental precautions : Prevent further leakage or spillage if safe to do so.

Methods for cleaning up : Ventilate the area.

Additional advice : If possible, stop flow of product. 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 safely vent the pressure before attempting repairs.

7. HANDLING AND STORAGE

Handling

Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling or being knocked over. Use equipment rated for cylinder pressure. Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 50°C (122°F). Only experienced and properly instructed persons should handle compressed gases/cryogenic liquids. Before using the product, determine its identity by reading the label. Know and understand the properties and hazards of the product before use. When doubt exists as to the correct handling procedure for a particular gas, contact the supplier. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Use an adjustable strap wrench to remove over-tight or rusted caps. Before connecting the container, check the complete gas system for suitability, particularly for pressure rating and materials. Before connecting the container for use, ensure that back feed from the system into the container is prevented. Ensure the complete gas system is compatible for pressure rating and materials of construction. Ensure the complete gas system has been checked for leaks before use. 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. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing a leak to occur. Open valve slowly. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Close valve after each use and when empty. Replace outlet caps or plugs and container caps as soon as container is disconnected from equipment. Do not subject containers to abnormal mechanical shock. Never attempt to lift a cylinder by its valve protection cap or guard. Do not use containers as rollers or supports or for any other purpose than to contain the gas as supplied. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit. Do not smoke while handling product or cylinders. Never re-compress a gas or a gas mixture without first consulting the supplier. Never attempt to transfer gases from one cylinder/container to another. Always use backflow protective device in piping. When returning cylinder install valve outlet cap or plug leak tight. 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 (122°F).

Storage

Containers should be stored in a purpose build compound which should be well ventilated, 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 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 (122°F). Return empty containers in a timely manner.

Technical measures/Precautions

Containers should be segregated in the storage area according to the various categories (e.g. flammable, toxic, etc.) and in accordance whit local regulations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal protective equipment

Hand protection	:	Wear working gloves when handling gas containers. Standard EN 388 - Protective gloves against mechanical risk.
Eye protection	:	Safety glasses recommended when handling cylinders. Standard EN 166 - Personal eye-protection.
Skin and body protection	:	Safety shoes are recommended when handling cylinders. Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
Special instructions for protection and hygiene	:	Ensure adequate ventilation, especially in confined areas.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Compressed gas. Colorless gas
Odor	:	None.
Odor threshold	:	No data available.
pH	:	Not applicable.
Melting point/range	:	-357 °F (-216 °C)
Boiling point/range	:	-318 °F (-194.3 °C)
Flash point	:	Not applicable.
Evaporation rate	:	Not applicable.
Flammability (solid, gas)	:	Refer to product classification in Section 2
Upper/lower explosion/flammability limit	:	No data available.
Vapor pressure	:	Not applicable.
Water solubility	:	Not known, but considered to have low solubility.
Relative vapor density	:	1 (air = 1)
Relative density	:	No data available.
Partition coefficient: n-octanol/water [log Kow]	:	Not applicable.
Auto-ignition temperature	:	No data available.
Decomposition temperature	:	No data available.

Viscosity	:	Not applicable.
Molecular Weight	:	28.96 g/mol
Density	:	0.081 lb/ft3 (0.0013 g/cm3) at 70 °F (21 °C) Note: (as vapor)
Specific Volume	:	12.35 ft3/lb (0.7710 m3/kg) at 70 °F (21 °C)

10. STABILITY AND REACTIVITY

Chemical Stability	:	Stable under normal conditions.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

Likely routes of exposure

Effects on Eye	:	In case of direct contact with eyes, seek medical advice.
Effects on Skin	:	Adverse effects not expected from this product.
Inhalation Effects	:	No adverse effect.
Ingestion Effects	:	Ingestion is not considered a potential route of exposure.
Symptoms	:	No data available.

Acute toxicity

Acute Oral Toxicity	:	No data is available on the product itself.
Inhalation	:	No data is available on the product itself.
Acute Dermal Toxicity	:	No data is available on the product itself.

Serious eye damage/eye irritation	:	No data available.
Sensitization.	:	No data available.

Chronic toxicity or effects from long term exposures

Carcinogenicity	:	No data available.
Reproductive toxicity	:	No data is available on the product itself.

Germ cell mutagenicity	:	No data is available on the product itself.
Specific target organ systemic toxicity (single exposure)	:	No data available.
Specific target organ systemic toxicity (repeated exposure)	:	No data available.
Aspiration hazard	:	No data available.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Aquatic toxicity	:	No data is available on the product itself.
Toxicity to other organisms	:	No data available.

Persistence and degradability

Biodegradability	:	No data is available on the product itself.
Mobility	:	Because of its high volatility, the product is unlikely to cause ground pollution.
Bioaccumulation	:	Refer to Section 9 "Partition Coefficient (n-octanol/water)".

Further information

No ecological damage caused by this product.

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products	:	Return unused product in original cylinder to supplier. Contact supplier if guidance is required. Refer to the EIGA code of practice Doc. 30 "Disposal of Gases", downloadable at http://www.eiga.org for more guidance on suitable disposal methods. List of hazardous waste codes: 16 05 05: Gases in pressure containers other than those mentioned in 16 05 04.
Contaminated packaging	:	Return cylinder to supplier.

14. TRANSPORT INFORMATION

ADR

UN/ID No.	:	UN1002
Proper shipping name	:	AIR, COMPRESSED
Class or Division	:	2
Tunnel Code	:	(E)
Label(s)	:	2.2
ADR/RID Hazard ID no.	:	20
Marine Pollutant	:	No

IATA

UN/ID No.	:	UN1002
Proper shipping name	:	Air, compressed
Class or Division	:	2.2
Label(s)	:	2.2
Marine Pollutant	:	No

IMDG

UN/ID No.	:	UN1002
Proper shipping name	:	AIR, COMPRESSED
Class or Division	:	2.2
Label(s)	:	2.2
Marine Pollutant	:	No
Segregation Group:	:	None

RID

UN/ID No.	:	UN1002
Proper shipping name	:	AIR, COMPRESSED
Class or Division	:	2
Label(s)	:	2.2
Marine Pollutant	:	No

Further Information

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 transportation information is not intended to convey all specific regulatory data relating to this material. For complete transportation information, contact customer service.

15. REGULATORY INFORMATION

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations

Workplace Health and Safety Act , SS586 Labeling.

Country	Regulatory list	Notification
USA	TSCA	Included on Inventory.
EU	EINECS	Included on Inventory.
Canada	DSL	Included on Inventory.
Australia	AICS	Included on Inventory.
Japan	ENCS	Included on Inventory.
South Korea	ECL	Included on Inventory.
China	SEPA	Included on Inventory.
Philippines	PICCS	Included on Inventory.

16. OTHER INFORMATION

Ensure all national/local regulations are observed.

Prepared by : Versum Materials, Product Regulatory Department

For additional information, please visit Versum Materials' Product Stewardship web site.
http://www.versummaterials.com/productstewardship/