

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
 Product name : Aligal 28
 Product code : SG-2002-02664

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Protective Atmosphere for Food and Beverage

1.3. Details of the supplier of the safety data sheet

Air Liquide America Specialty Gases
 6141 Easton Rd
 Plumsteadville, PA 18949 - USA
 T 1.800.217.2688
www.airliquide.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Ox. Gas 1 H270
 Compressed gas H280

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS03

GHS04

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H270 - May cause or intensify fire; oxidizer
 H280 - Contains gas under pressure; may explode if heated
 CGA-HG03 - May increase respiration and heart rate
 CGA-HG24 - Supports combustion.
 OSHA-H01 - May displace oxygen and cause rapid suffocation

Precautionary statements (GHS-US) :

P202 - Do not handle until all safety precautions have been read and understood
 P220 - Keep/Store away from combustible materials, clothing
 P271 - Use only outdoors or in a well-ventilated area
 P280 - Wear protective clothing, protective gloves, eye protection, face protection
 P244 - Keep reduction valves/valves and fittings free from oil and grease
 P370+P376 - In case of fire: Stop leak if safe to do so
 P308+P313 - If exposed or concerned: Get medical advice/attention
 P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
 P403 - Store in a well-ventilated place
 CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)
 CGA-PG05 - Use a back flow preventive device in the piping
 CGA-PG06 - Close valve after each use and when empty
 CGA-PG20 - Use only with equipment of compatible materials of construction
 CGA-PG10 - Use only with equipment rated for cylinder pressure
 CGA-PG14 - Approach suspected leak area with caution
 CGA-PG21 - Open valve slowly
 CGA-PG22 - Use only with equipment cleaned for oxygen service
 P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Aligal 28

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Oxygen	(CAS No)7782-44-7	80	Ox. Gas 1, H270 Compressed gas, H280
Carbon dioxide	(CAS No)124-38-9	20	Simple Asphy, H380 Liquefied gas, H280

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Adverse effects not expected from this product.
First-aid measures after skin contact : Adverse effects not expected from this product.
First-aid measures after eye contact : Adverse effects not expected from this product.
First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Symptoms similar to those listed under inhalation.
Symptoms/injuries after inhalation : May increase respiration and heart rate.
Symptoms/injuries after skin contact : Adverse effects not expected from this product.
Symptoms/injuries after eye contact : Adverse effects not expected from this product.
Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.
Symptoms/injuries upon intravenous administration : Not known.
Chronic symptoms : Adverse effects not expected from this product.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media : Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Fire hazard : May intensify fire; oxidizer.
Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
Reactivity : May react vigorously or violently with reducing agents.

5.3. Advice for firefighters

Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation.

Aligal 28

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment consistent with the site emergency plan.
- Emergency procedures : Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

6.1.2. For emergency responders

- Protective equipment : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.
- Emergency procedures : Evacuate and limit access. Ventilate area.

6.2. Environmental precautions

Try to stop release if safe to do so.

6.3. Methods and material for containment and cleaning up

- For containment : Try to stop release if safe to do so.
- Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

6.4. Reference to other sections

See also Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure.
- Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.
- Hygiene measures : Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
- Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area.
- Incompatible products : None known.
- Incompatible materials : Combustible materials. Flammable materials.

7.3. Specific end use(s)

See Section 1.2 Specific end use(s).

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Carbon dioxide (124-38-9)		
USA ACGIH	ACGIH TWA (ppm)	5000 ppm
USA ACGIH	ACGIH STEL (ppm)	30000 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	9000 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	5000 ppm

8.2. Exposure controls

- Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Consider work permit system e.g. for maintenance activities. Ensure exposure is below occupational exposure limits (where available).
- Hand protection : Wear working gloves when handling gas containers. 29CFR 1910.138: Hand Protection.
- Eye protection : Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.
- Skin and body protection : Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.
- Respiratory protection : None necessary during normal and routine operations. See sections 5 & 6.
- Thermal hazard protection : None necessary during normal and routine operations.
- Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.
- Other information : Wear safety shoes while handling containers. Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

Aligal 28

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Clear, colorless gas.
Molecular mass	: Not applicable for gas-mixtures
Color	: Colorless
Odor	: odorless
Odor threshold	: Not available
pH	: Not applicable for gas-mixtures
Relative evaporation rate (butyl acetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable for gas-mixtures
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not flammable - Not combustible
Vapor pressure	: Not applicable
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Water: Solubility in water of component(s) of the mixture : • : 2000 mg/l • : 39 mg/l
Log Pow	: Not applicable for gas-mixtures
Log Kow	: Not applicable for gas-mixtures.
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: Not applicable
Explosive properties	: Not applicable - not flammable.
Oxidizing properties	: Not combustible but enhances combustion of other substances. May cause or intensify fire; oxidizer.
Explosive limits	: Not applicable - not flammable

9.2. Other information

Additional information	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.
------------------------	--

SECTION 10: Stability and reactivity

10.1. Reactivity

May react vigorously or violently with reducing agents.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

May react vigorously or violently with combustible or flammable materials. Can form explosive mixtures with flammable materials.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Flammable materials. combustible materials.

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Aligal 28

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Acute toxicity : Not classified

Oxygen (7782-44-7)

LC50 inhalation rat (ppm)	400000 ppm/4h
---------------------------	---------------

Skin corrosion/irritation : Not classified
pH: Not applicable for gas-mixtures

Serious eye damage/irritation : Not classified
pH: Not applicable for gas-mixtures

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified
No known effects from this product.

Aspiration hazard : Not classified
Not applicable for gases and gas-mixtures.

Symptoms/injuries after inhalation : May increase respiration and heart rate.

Symptoms/injuries after skin contact : Adverse effects not expected from this product.

Symptoms/injuries after eye contact : Adverse effects not expected from this product.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous administration : Not known.

Chronic symptoms : Adverse effects not expected from this product.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

Carbon dioxide (124-38-9)

Persistence and degradability	No ecological damage caused by this product.
-------------------------------	--

Oxygen (7782-44-7)

Persistence and degradability	No ecological damage caused by this product.
-------------------------------	--

12.3. Bioaccumulative potential

Aligal 28

Log Pow	Not applicable for gas-mixtures
---------	---------------------------------

Log Kow	Not applicable for gas-mixtures.
---------	----------------------------------

Bioaccumulative potential	No data available.
---------------------------	--------------------

Carbon dioxide (124-38-9)

BCF fish 1	(no bioaccumulation)
------------	----------------------

Log Pow	0.83
---------	------

Bioaccumulative potential	No ecological damage caused by this product.
---------------------------	--

Oxygen (7782-44-7)

Log Pow	Not applicable for inorganic gases.
---------	-------------------------------------

Bioaccumulative potential	No ecological damage caused by this product.
---------------------------	--

12.4. Mobility in soil

Aligal 28

Mobility in soil	No data available.
------------------	--------------------

Carbon dioxide (124-38-9)

Ecology - soil	No ecological damage caused by this product.
----------------	--

Aligal 28

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Oxygen (7782-44-7)

Ecology - soil : No ecological damage caused by this product.

12.5. Other adverse effects

Effect on ozone layer : None.
Effect on the global warming : Contains greenhouse gas(es) not covered by 842/2006/EC.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Contact supplier if guidance is required. May be vented to atmosphere in a well ventilated place. Do not discharge into any place where its accumulation could be dangerous. 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.
Additional information : None.
List of hazardous wastes : 16 05 04: Gases in pressure containers (including halons) containing dangerous substances.
Ecology - waste materials : None known.

SECTION 14: Transport information

In accordance with DOT
Transport document description : UN3156 Compressed gas, oxidizing, n.o.s.
UN-No.(DOT) : 3156
DOT NA no. : UN3156
Proper Shipping Name (DOT) : Compressed gas, oxidizing, n.o.s.
Hazard labels (DOT) : 2.2 - Non-flammable gas
5.1 - Oxidizer



DOT Symbols : G - Identifies PSN requiring a technical name
DOT Special Provisions (49 CFR 172.102) : A14 - This material is not authorized to be transported as a limited quantity or consumer commodity in accordance with 173.306 of this subchapter when transported aboard an aircraft.
DOT Packaging Exceptions (49 CFR 173.xxx) : 306
DOT Packaging Non Bulk (49 CFR 173.xxx) : 302
DOT Packaging Bulk (49 CFR 173.xxx) : 314;315
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 75 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg
DOT Vessel Stowage Location : D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.

Additional information

Other information : No supplementary information available.

Aligal 28

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

ADR

Transport document description : UN 3156, 2.2 (5.1), (E)
Class (ADR) : 2 - Gases
Hazard identification number (Kemler No.) : 25
Classification code (ADR) : 10
Hazard labels (ADR) : 2.2 - Non-flammable compressed gas
5.1 - Oxidizer



Orange plates :



Tunnel restriction code (ADR) : E
LQ : 0
Excepted quantities (ADR) : E0

Transport by sea

UN-No. (IMDG) : 3156
Proper Shipping Name (IMDG) : COMPRESSED GAS, OXIDIZING, N.O.S.
Class (IMDG) : 2.2 - Non-flammable, non-toxic gases

Air transport

UN-No.(IATA) : 3156
Proper Shipping Name (IATA) : COMPRESSED GAS, OXIDIZING, N.O.S.
Class (IATA) : 2

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

Carbon dioxide (124-38-9)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class A - Compressed Gas

Oxygen (7782-44-7)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class A - Compressed Gas
Class C - Oxidizing Material

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

15.2.2. National regulations

No additional information available

15.3. US State regulations

Aligal 28

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Carbon dioxide (124-38-9)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Oxygen (7782-44-7)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.
:
Training advice : Receptacle under pressure.
Other information : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases: see section 16:

Compressed gas	Gases under pressure Compressed gas
Liquefied gas	Gases under pressure Liquefied gas
Ox. Gas 1	Oxidizing gases Category 1
Simple Asphy	Simple Asphyxiant
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H380	May displace oxygen and cause rapid suffocation

SDS US (GHS HazCom 2012)

This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.