

# Modified Atmosphere Packaging



A complete range of pure & mixed gases to address the shelf life requirements of your food products

- Preserve the freshness, colour, flavour and nutritional attributes of your food products with an all-natural solution
- Extend product shelf life by slowing down microbial, enzymatic and physical deterioration that would otherwise occur under air
- Optimize inventory levels and expand your distribution networks

# ALIGAL™

## Quality you can depend on...

- Food grade gases compliant with local regulations & HACCP\* methodology
- Specific filling and quality control procedures are followed
- Traceability and product recall systems are in place

\* Hazard Analysis and Critical Control Points

## Reliability when you need it...

- The same quality & consistency anywhere in the world
- Local availability supported by an extensive production and distribution network
- Different supply modes to adapt to your changing gas requirements
- On-site mixing capabilities for greater flexibility

## Food safety in every cylinder...

- Dedicated cylinders, with specific labeling, for use only in the food industry
- Special valves to avoid cross-contamination
- Tamper-evident seals to guarantee gas integrity

## ALIGAL™ products are specially formulated for Modified Atmosphere Packaging by leveraging the properties of each gas molecule:

Nitrogen	Carbon Dioxide	Oxygen	Argon
<ul style="list-style-type: none"> <li>• Prevents oxidation</li> <li>• Limits the growth of aerobic bacteria</li> <li>• Protects against package collapse</li> </ul>	<ul style="list-style-type: none"> <li>• Limits the growth of bacteria</li> <li>• Slows down the development of mold</li> <li>• Contributes to package collapse</li> </ul>	<ul style="list-style-type: none"> <li>• Maintains the bright colour of red meat</li> <li>• Prevents anaerobic conditions</li> <li>• Essential for respiration of fresh fruits and vegetables</li> </ul>	<ul style="list-style-type: none"> <li>• Similar benefits to nitrogen</li> <li>• Inhibiting effect on the respiration of fresh fruits and vegetables</li> </ul>

## There is always an ALIGAL™ product for you:

Products	ALIGAL™ 1	ALIGAL™ 2	ALIGAL™ 3	ALIGAL™ 6	ALIGAL™ 13	ALIGAL™ 15	ALIGAL™ 27	ALIGAL™ 62
Bakery Products	●	●			●	●		
Cheese	●	●			●			
Dry Food (coffee, snacks)	●				●			
Fish, Seafood & Surimi-Processed					●	●		
Fish-Dried /Smoked	●				●			
Fresh Mussels & Oysters			○				●	
Meat Cuts-Raw			○				●	
Meat & Poultry-Processed					●	●		
Poultry Parts-Raw		●				●		
Prepared Meals & Pasta					●	●		
Milk Powder	●				●			
Sandwiches		●			●			●
Vegetables & Fruits (incl. salad, tomatoes)	●			●				●
Vegetables-Fresh-cut (incl. carrots, squash)					●	●		

○ ALIGAL™ 3 is available for on-site mixing of ALIGAL™ 27

Let Air Liquide's food specialists recommend the best ALIGAL™ solution for your process requirements.

## The purity of ALIGAL™ gases protects the quality of your food products:

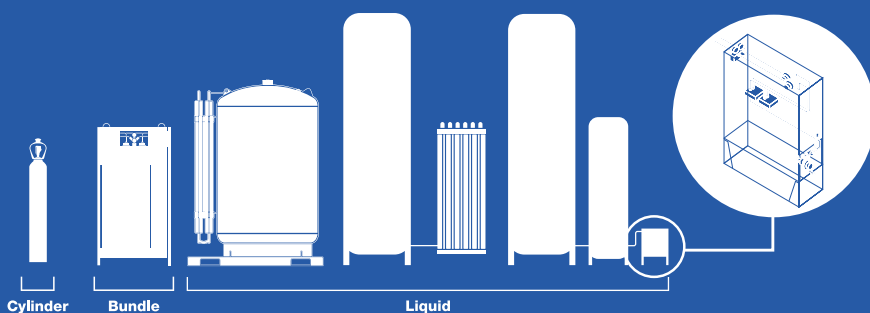
Products Specifications	ALIGAL™ 1	ALIGAL™ 2	ALIGAL™ 3	ALIGAL™ 6	ALIGAL™ 13	ALIGAL™ 15	ALIGAL™ 27	ALIGAL™ 62
Gas purity - Gas composition	N <sub>2</sub> ≥ 99.995%	CO <sub>2</sub> ≥ 99.9%	O <sub>2</sub> ≥ 99.5%	Ar ≥ 99.99%	N <sub>2</sub> 70% CO <sub>2</sub> 30%	N <sub>2</sub> 50% CO <sub>2</sub> 50%	O <sub>2</sub> 70% CO <sub>2</sub> 30%	Ar 80% CO <sub>2</sub> 20%
H <sub>2</sub> O (ppm v/v)	≤ 50	≤ 50	≤ 50	≤ 50	≤ 50	≤ 50	≤ 50	≤ 50
O <sub>2</sub> (ppm v/v)	≤ 20	≤ 30		≤ 20	≤ 20	≤ 20		≤ 20
CO (ppm v/v)	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	≤ 10
NO/NO <sub>2</sub> (ppm v/v)	≤ 10	≤ 10			≤ 10	≤ 10	≤ 10	≤ 10 <sup>(3)</sup>
C <sub>n</sub> H <sub>m</sub> (ppm v/v)	≤ 30	≤ 30	≤ 100	≤ 100	≤ 30	≤ 30	≤ 100	≤ 30
CO <sub>2</sub> (ppm v/v)			≤ 300					
Total Sulphur (ppm v/v)		≤ 0,5 <sup>(3)</sup>			≤ 0,5 <sup>(3)</sup>	≤ 0,5 <sup>(3)</sup>	≤ 0,5 <sup>(3)</sup>	≤ 0,5 <sup>(3)</sup>
NVOR <sup>(1)</sup> (ppm w/w)		≤ 5 <sup>(3)</sup>			≤ 5 <sup>(3)</sup>	≤ 5 <sup>(3)</sup>	≤ 5 <sup>(3)</sup>	≤ 5 <sup>(3)</sup>
Odour			odour free	odour free				
Tests <sup>(2)</sup>		tests passed						

(1) NVOR = Non Volatile Organic Residue (oil, grease)

(2) "Acidity" test and "Reducing substances + hydrogen phosphide & sulfide" test

(3) Guaranteed in the liquid CO<sub>2</sub> raw product

ALIGAL™ is available with the best choice of supply modes to ensure quality, consistency, reliability and cost competitiveness.



[www.airliquide.com](http://www.airliquide.com)

The world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 65,000 employees and serves more than 3 million customers and patients.