

# Carbon Dioxide Absorption

## Sofnolime® Military Diving and Submarine Grade



Military diving and submarine grade Sofnolime® is a carbon dioxide absorbent, optimised for the removal of carbon dioxide from breathable gas in diving rebreathers and submarines.

### Applications

Diving grade Sofnolime® absorbs carbon dioxide ensuring a breathable atmosphere is maintained. It is optimised for the removal of carbon dioxide from recirculated air/nitrox/heliox in rebreathers, saturation dive systems and submarines.

- Military rebreathers
- Submarines

### Properties

- High intrinsic carbon dioxide capacity
- Available with white to violet pH change indicator
- Irregular shaped/sized granules for optimum packing
- High attrition resistance (low dust formation)

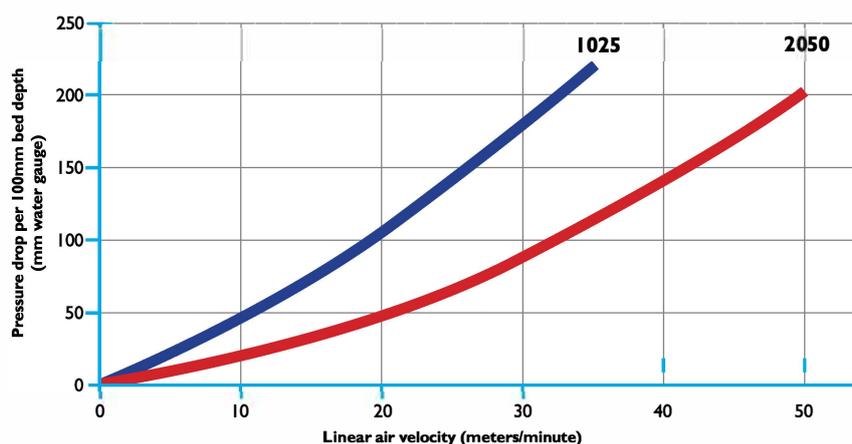
### Product Details

Three grades are available, D, L and S Grade. The main differences between the three grades are particle size, shape, moisture content and testing regime. L Grade is a 2.0mm to 5.0mm extrudate with a D-shaped cross-section. The D and S Grades have a smaller particle size (1.0mm to 2.5mm) and have a triangular cross-section which combine to give a higher CO<sub>2</sub> usable capacity compared with L Grade. These grades also have differing absorption characteristics under various environmental conditions. S grade is available with a colour indicator (white to violet) or without (non-indicating), D and L grades are non-indicating materials.



### Typical Performance - Pressure Drop

Air linear velocity - pressure drop relationship for 'L' and 'D' grade Sofnolime®



These are typical values and can vary depending on the way the material is packed into the canister

# Carbon Dioxide Absorption

## Specification

Sofnolime®	1025 (812) D Grade			2050 (408) L Grade			1025 S Grade		
	Particle size	Specification	Typical Results	Particle size	Specification	Typical Results	Particle size	Specification	Typical Results
Characteristics		1.0-2.5mm			2.0-5.0mm			1.0-2.5mm	
	>2.80mm	1% Max	Zero	>5.60mm	1% Max	Zero	>2.80mm	1% Max	Zero
	2.00-2.80mm	30.0% Max	9%	4.75-5.60mm	7.0%	Zero	2.00-2.80mm	30.0% Max	9%
	1.40-2.00mm	Balance	83%	2.00-4.75mm	Balance	94%	1.40-2.00mm	Balance	83%
	0.60-1.40mm	20.0% Max	7%	0.60-2.00mm	15.0% Max	6%	0.60-1.40mm	20.0% Max	7%
	<0.60mm	1.0% Max	0.2%	<0.60mm	1.0% Max	0.2%	<0.60mm	1.0% Max	0.2%
Moisture		16-20%	NA		16-20%	NA		16-20%	NA
Hardness		>80%	>90%		>75%	>95%		>80%	>90%
Typical Usable Capacity			150 litres/kg			110 litres/kg			150 litres/kg

## How it works

Sofnolime® removes carbon dioxide (and other acidic contaminants) from gas streams via an exothermic, water facilitated, base catalysed chemical reaction. The Sofnolime® contains a carefully controlled level of water which aids the reaction. Water is also formed as a by-product of the reaction. The reaction proceeds in 3 stages:-

(i) Reaction at aqueous layer



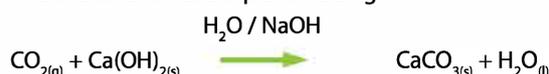
(ii) Bicarbonate formation



(iii) Decomposition/regeneration of NaOH catalyst



The overall balanced equation being :-



## Additional information

Pack Size	Grade	Number of packs/drums on pallet	Net weight of pallet (kg)	Gross weight of pallet (kg)	Dimensions of fully laden pallet (W x D x H)cm
9.0kg twinpack (2x4.5kg)	L & D	60	540	625	120 x 100 x 105
20kg keg	L,D & S	32	640	705	120 x 100 x 95
20kg metal drum	S	24	480	553	120 x 100 x 98
50kg metal drum	S	8	400	489	120 x 100 x 84

### Quality

Molecular Products Ltd's aim is to manufacture chemical products which satisfy completely the needs of our customers. All products are rigorously tested to ensure conformance to the specification. Our activities comply to the requirements of ISO 9001 and ISO 13485.

Sofnolime® D and L grades, without indicator, pass testing based on NATO standard STANAG 1411.

## Molecular Products Limited

Parkway, Harlow Business Park  
Harlow, Essex, CM19 5FR, UK

T +44 (0)1279 445111  
F +44 (0)1279 401231

E sales@molprod.com  
W www.molecularproducts.com

Andrea Gallo di Luigi S.r.l.  
Via Erzelli, 9 16152 Genova  
tel. +39 010 6502941  
[www.andreagallo.it](http://www.andreagallo.it)  
[info@andreagallo.it](mailto:info@andreagallo.it)