

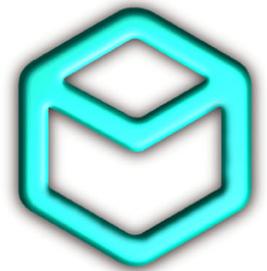
**MOLECULAR PRODUCTS LTD**



**molecular**

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# COMPENTENCIES



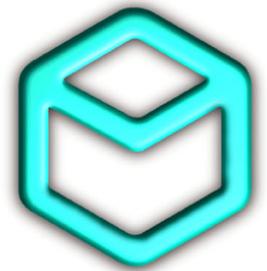
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# MOLECULAR PRODUCTS

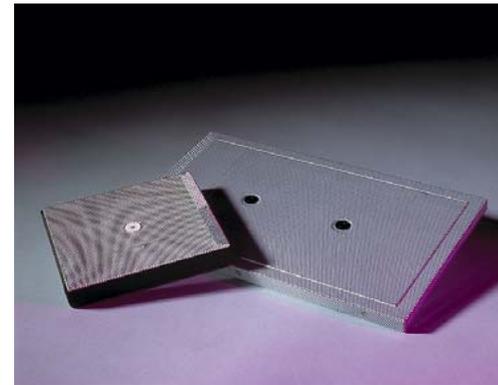
## *Capabilities - Gas Filtration*



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*Respiratory*



*Industrial*



*Military*

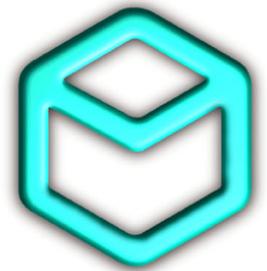


*Environmental*

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# MOLECULAR PRODUCTS

## Capabilities - O<sub>2</sub> Generation



molecular



*Military*



*Healthcare*



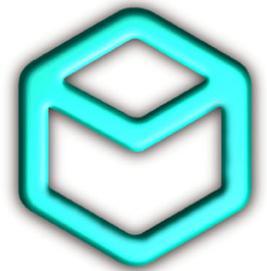
*Respiratory*



*Aerospace* pure inspiration

# MOLECULAR PRODUCTS

## Capabilities - CO<sub>2</sub> Removal



molecular



Military



Healthcare



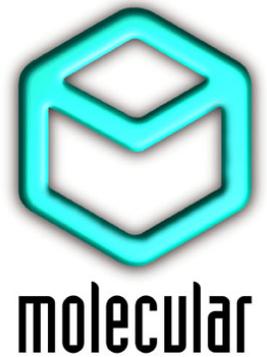
Industrial



Offshore

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# COLLECTIVE PROTECTION IN SEALED ENVIRONMENTS



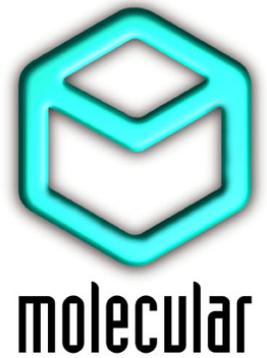
## Applications

- Mine refuges in hard rock mining
- Safe havens for chemical or gas production facilities
- Military and civilian bunkers

## Customers

- Shelter designers and builders
- Shelter operators

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# COLLECTIVE PROTECTION IN SEALED ENVIRONMENTS

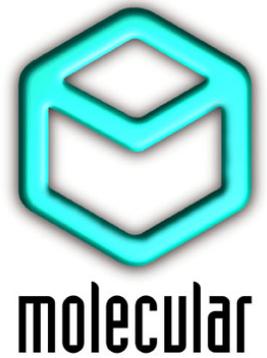
## Mine Refuge

- Sealed environment
- Totally independent air supply and toxic gas removal



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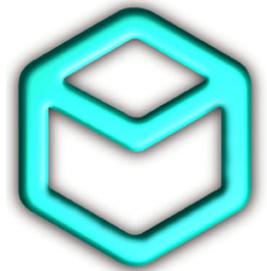
# PACU



- **P**ortable **A**tmosphere **C**ontrol **U**nit
- The PACU combines CO<sub>2</sub> absorption (product known as CASPA, packed with Sofnolime) and O<sub>2</sub> generation (product known as SCOG, packed with a chlorate candle)
- Current design specified for 4 people for 24 hours in a sealed room approx 32 m<sup>3</sup>



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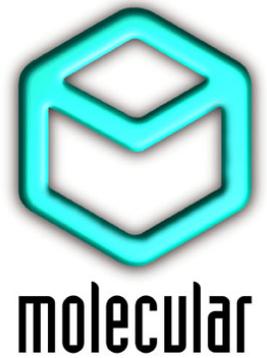


Air with elevated  
 $\text{CO}_2$  &  
decreased  $\text{O}_2$   
from  
atmosphere

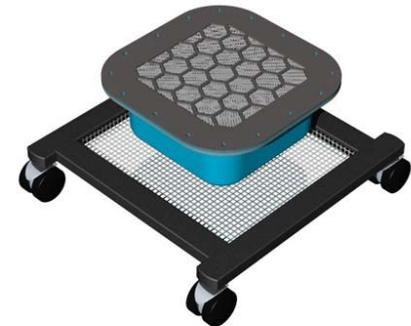
$\text{CO}_2$  free air with  
 $\text{O}_2$  replenished

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# CASPA Capability

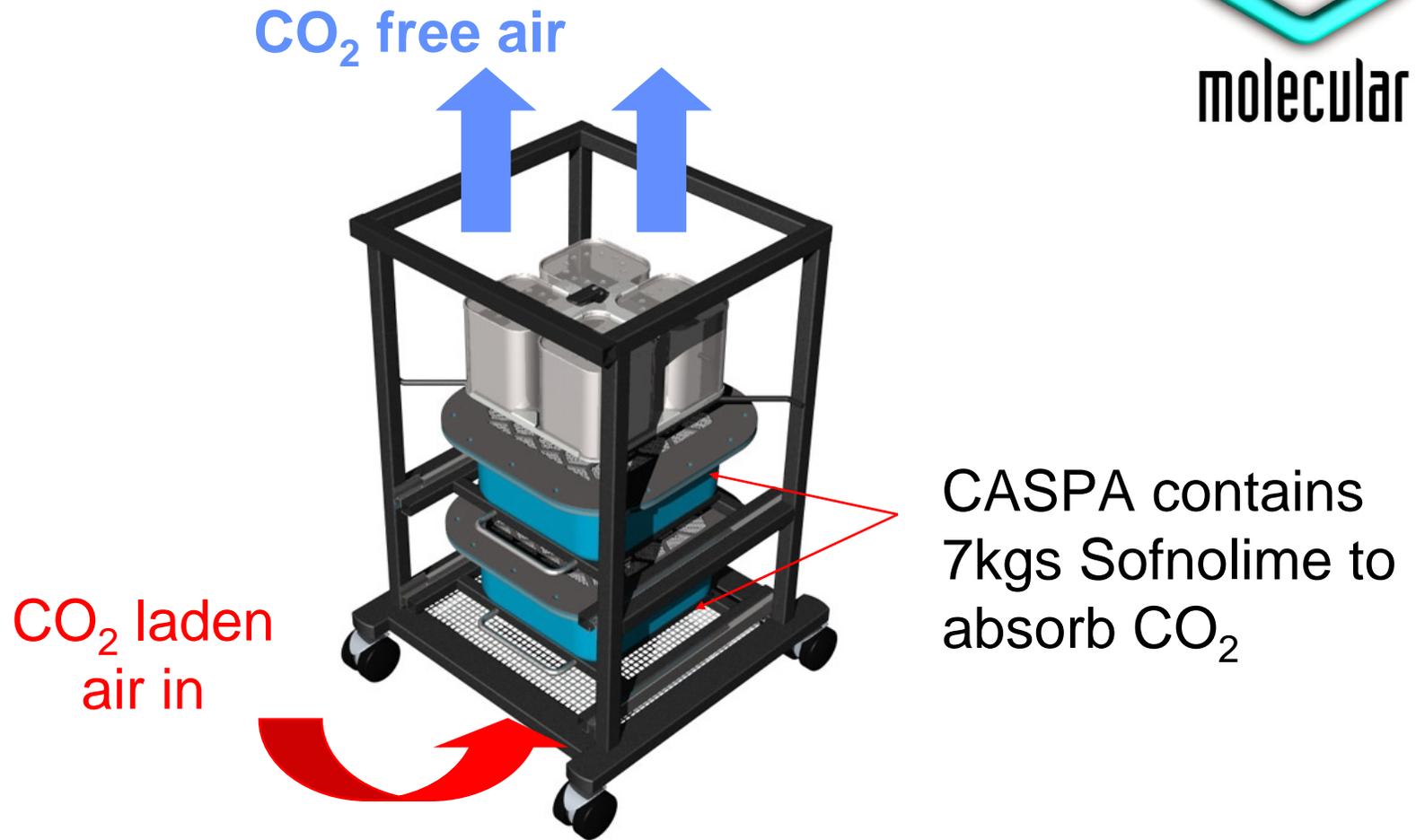
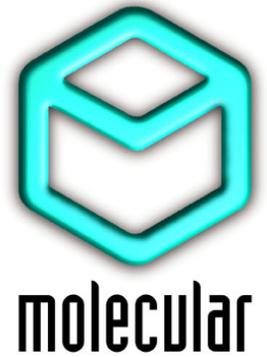


- **C**arbon dioxide **S**elf **P**owered **A**bsorber
- Self contained absorption unit intended for removal of respired CO<sub>2</sub> in an enclosed environment
- CO<sub>2</sub> capacity of unit > 1600 litre per unit
- Operational envelope
  - » 1-3% CO<sub>2</sub> at 5-30°C and up to 5 bar
- Storage life – 10 years
- Each unit is capable of removing the CO<sub>2</sub> produced by 4 people in a 12 hour period



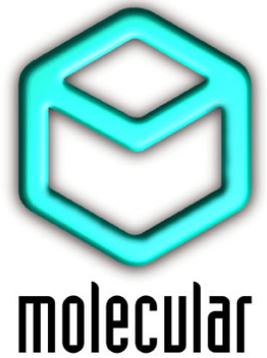
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# Internal location of CASPAs



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# SCOG Capability

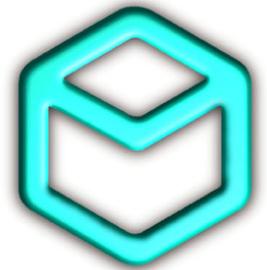


- **Self Contained Oxygen Generator**
- **Intended to produce breathable oxygen**
- **Operational performance unaffected by external temperatures and pressures**
- **720 litres of O<sub>2</sub> over 25 minutes**
  - » This will raise the O<sub>2</sub> content in a room of 24m<sup>3</sup> from 18-21%

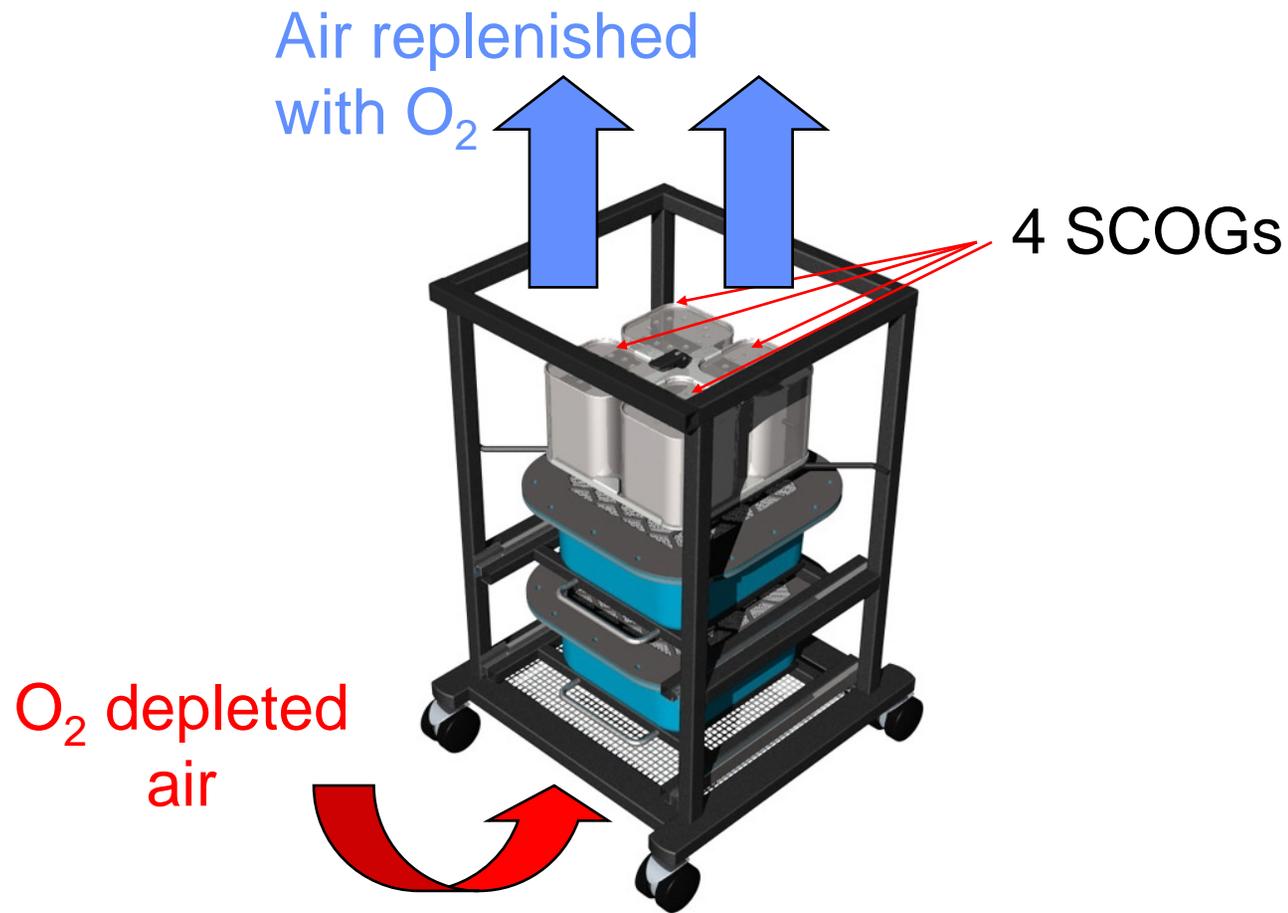


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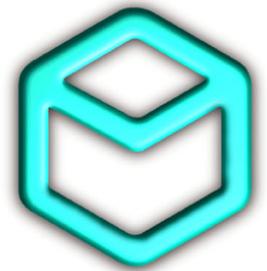
# Internal location of SCOGs



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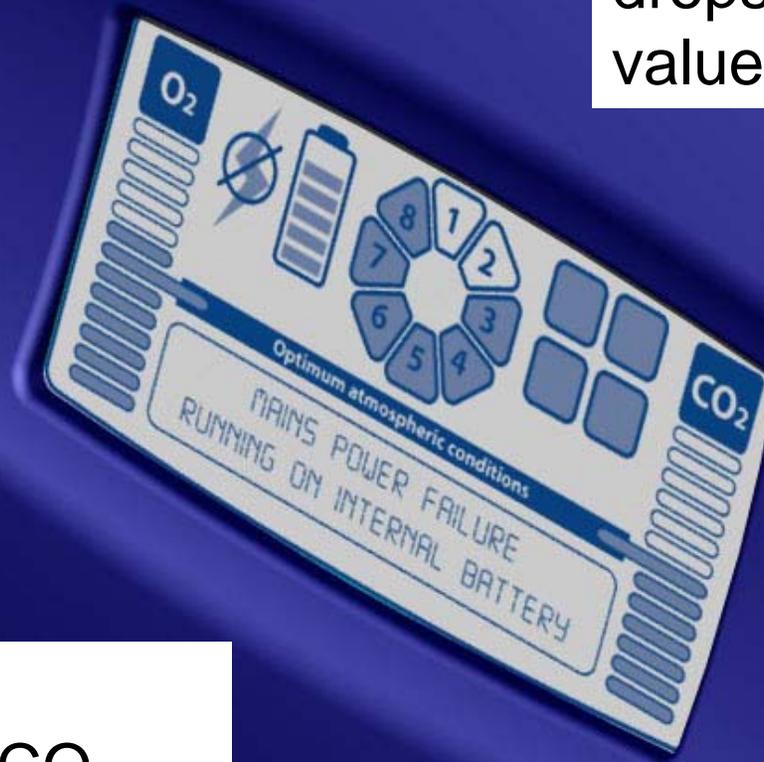


The unit is  
designed for 4  
people for 24  
hours in a 32 m<sup>3</sup>  
sealed room

The consumables  
can be replaced to  
extend running time

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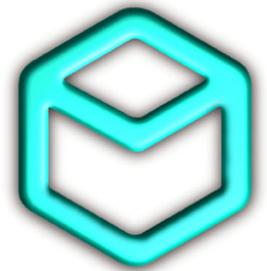
O<sub>2</sub> generator  
initiated when O<sub>2</sub>  
drops below set  
value



CO<sub>2</sub> absorber  
initiated when CO<sub>2</sub>  
rises to set value

# PACU

## Portable Atmosphere Control Unit



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