

# TELEFLO

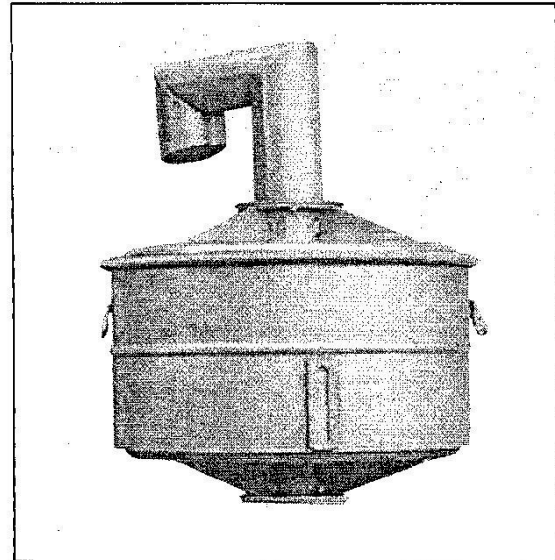
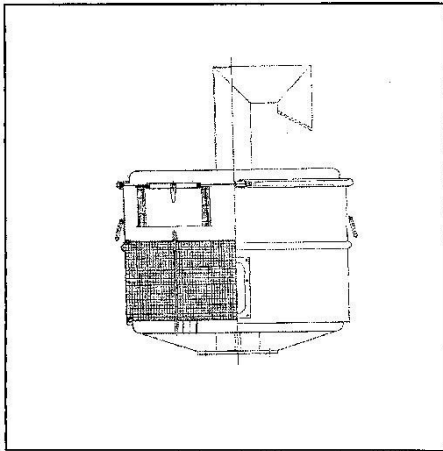
## CO 2- FILTER / ABSORBER



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### GENERAL :

FLUIDYNE CO 2 ABSORBER IS IDEAL WHEREVER CO 2 MUST REMOVED FROM THE AIR. THIS MAY BE IN INDUSTRIAL INSTALLATIONS (e.g. water treatment) OR IN CLOSED ENVIRONMENT WHERE A CERTAIN CO2 CONCENTRATION MAY NOT BE EXCEEDED.



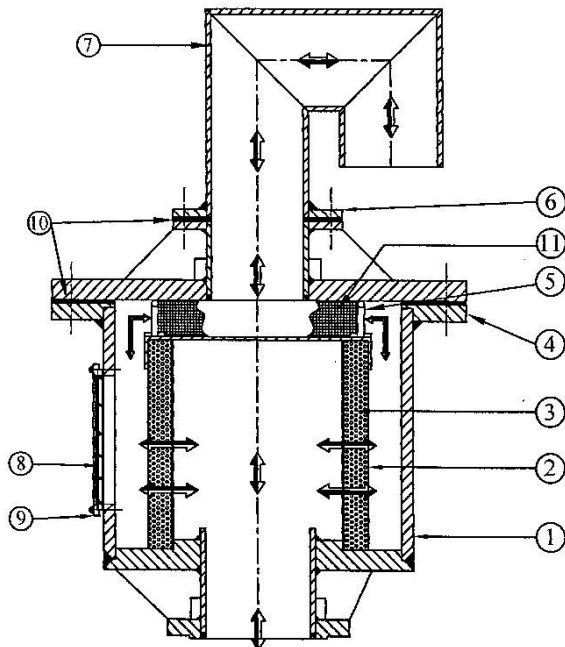
### DESIGN :

FLUIDYNE CO2 ABSORBER CONSIST OF TWO STAGES :

THE OPTIONAL FILTER SECTION AND THE CO2 ABSORBING SECTION. THE CARBON STEEL OR STAINLESS STEEL HOUSING IS SECURED WITH GASKET COVER SEAL.

### CONSTRUCTION :

- \* PARTICLE FILTRATION AND CO2 ABSORPTION IN ONE UNIT.
- \* COMPACT AND ROBUST CONSTRUCTION.
- \* CARBON STEEL OR STAINLESS STEEL CASING WITH GASKET COVER LEAD SEAL.



11	PRE-FILTER	SS304/ SS316
10	GASKET	NEOPRENE
9	SIGHT GLASS COVER	CS/ SS304/ SS316
8	SIGHT GLASS	BOROSILICATE
7	VENT PIPE	CS/ SS304/ SS316
6	VENT PLATE FLANGE	CS/ SS304/ SS316
5	HANDLE	SS 304/ SS316
4	COVER	C.S. / SS304/ SS316
3	ELEMENT	Co2 ABSORBER
2	BASKET (8# MESH)	SS 316 /SS 304
1	BODY	C.S. / SS304/ SS316
	DESCRIPTION	MATERIAL

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## CO 2- FILTER / ABSORBER

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### CO 2 FILTER :

The CO 2 filter section consists of a high-grade absorbent material, specially selected for its performance. With a built-in-sight glass indicator it is easy to determine the degree of exhaustion of the filter : the colour of the media changes from its original gray to a blue violet.

### OPERATING PRINCIPLE :

Fluidyne CO2/ Absorber should be fitted according to arrow that indicates the air flow direction. Thus the air to be cleaned first through the filter and then through the absorbent media. During this process minor quantities of water (ph-value 11-12) may occur; structural measures must be employed to retain it. It is not expected that the absorbent media will stick.

### FILTER CONNECTION :

Air inlet on top is connected with a seal / gasket between casing and cover. The outlet is equipped with a flange drilled on customer request.

### SAFETY INSTRUCTIONS :

For safety reasons relevant safety sheet standards to be observed and respected unconditionally.

improver use, handling or treatment of the CO2 absorbing unit or media by the customer, discharge Fluidyne from all liability.

### STORAGE AND MAINTENANCE :

For shipment Fluidyne CO2 / Absorber are tightly sealed. They can be stored for years without loss efficiency.

### Following must be ensured :

- \* The absorbent media still keeps its original colour (gray white).
- \* No external signs of corrosion can be seen on the casing.
- \* No signs of rough handling like damages are noticed.

The build-in-indicator of the absorbent material indicates the degree of exhaustion with its colour changing from original graywhite up to blue violet.

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The build-in-indicator of the absorbent material indicates the degree of exhaustion with its colour changing from original gray white up to blue violet.

In case of absorbent media change following additional parts are needed :

- Position 3 : CO 2 Absorber Element.
- Position 5 : Air Filter Element.
- Position 10 : Sealing Gasket.

We do not assume liability for damage caused by the use of a soiled or saturated filter..

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## FLUIDYNE CO2 ABSORBER CHEMICAL REACTION FLUIDYNE CO2 ABSORBER

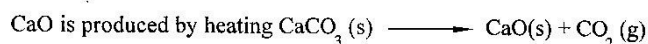
### COMPOSITION

<u>COMPONENTS</u>	<u>%</u>
Ca(OH) <sub>2</sub> % OR (CaO)	91-94
NaOH %	4-6
KOH %	4-6
Water Content %	1 to 3
BA(OH) <sub>2</sub> -8H <sub>2</sub> O%	Trace
SIZE (mm)	10 to 15 mm
INDICATOR	Yes

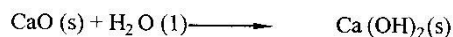
Note : Percentages are approximations which may not sum to 100%.

THE MAIN COMPOSITION IS CALCIUM OXISE -- CaO

**CaO is produced by heating Ca CO<sub>3</sub> :**



This above reaction is reversible; calcium oxide will react with carbon dioxide to form calcium carbonate. The reaction is driven to the right by flushing carbon dioxide from the mixture as it is released. CaO can be regenerated by this process by heating CaCO<sub>3</sub> at 500 to 600 deg. C in an autoclave furnace.



The reaction of calcium hydroxide with carbon dioxide is faster, producing a mortar that hardens more quickly.

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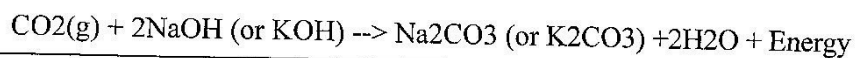


## CO 2- FILTER / ABSORBER

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### FLUIDYNE CO2 ABSORBER

#### CO 2 absorption process :



#### OTHER CHEMICAL REACTIONS FOLLOWS :

1.  $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3$
2.  $\text{H}_2\text{CO}_3 + 2\text{NaOH}(\text{or KOH}) \rightarrow \text{Na}_2\text{CO}_3(\text{or K}_2\text{CO}_3) + 2\text{H}_2\text{O} + \text{Energy}$
3.  $\text{Na}_2\text{CO}_3(\text{or K}_2\text{CO}_3) + \text{Ca(OH)}_2 \rightarrow \text{CaCO}_3 + 2\text{NaOH}(\text{or KOH})$

#1 is called the first neutralization reaction. In #2 and #3 the second neutralization reaction and the regeneration of activator take place.  $\text{CaCO}_3$  is an insoluble precipitate.

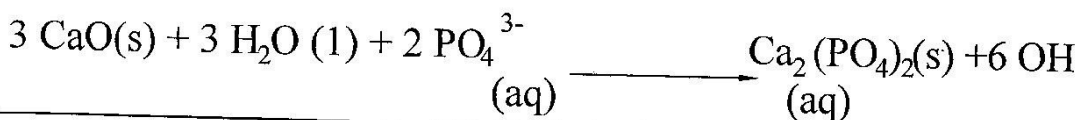
### ADDITIONAL USES :

Additional use of absorber is as stack gas scrubbers to reduce sulfur dioxide emissions from power plants.

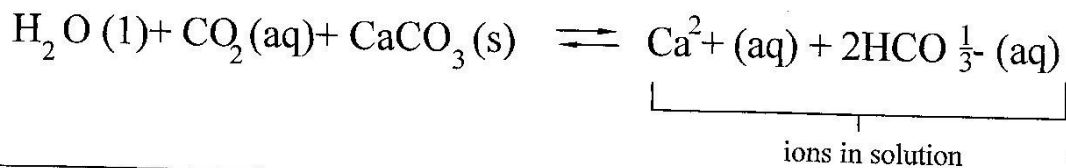
Sulfur dioxide reacts to form solid calcium sulfite :



It is also used to remove phosphates :



### AFTER SIGNS OF EXHAUSTION THIS REACTION TAKES PLACE :



### INDICATION

FLUIDYNE INDICATION TYPE CO2 ABSORBER IS AVAILABLE IN TWO FORMS:

- \* PINK TO WHITE ON CO2 ABSORPTION.
- \* WHITE TO VIOLET ON CO2 ABSORPTION.

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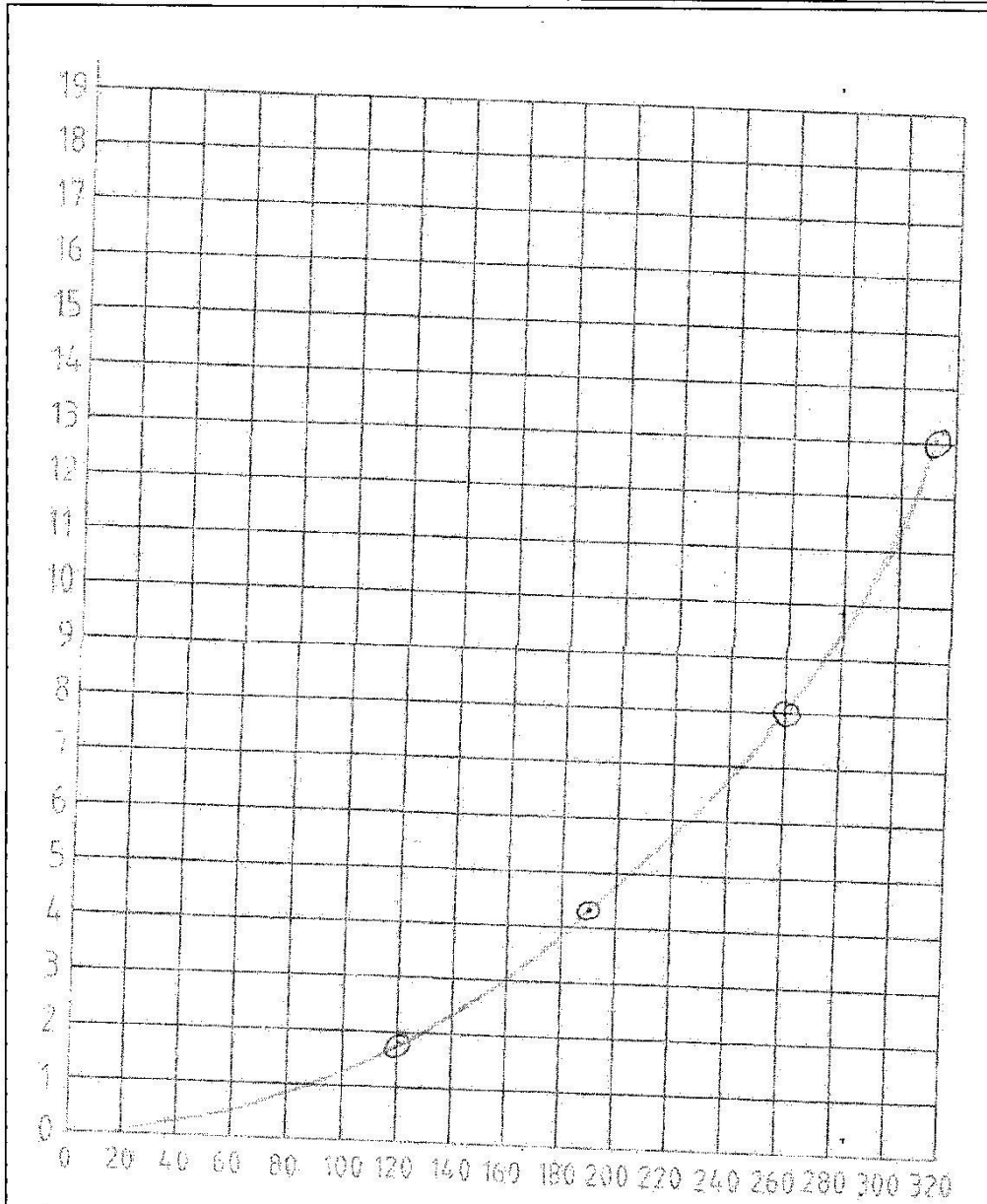
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DIFFERENTIAL PRESSURE DROP CURVE  
FLUIDYNE  
CO2-FILTER K3



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CONTRACTOR M/s ELIXIR ENGIN. PVT.LTD.

DRN

PRAKASH DATE 23/09/11

CONSULTANT M/s.

CHD/APD

KS SCALE NTS

QUOTATION No. : KS/ET-923/11 DATE : 11/08/2011

DRG. NO.

CO2/102/2011 REV - 1

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