

Flame Arrestors

Specialised Ceramic Flame Arrestors and Breather Vents



The demands on safety and environmental concern in many of today's industries are leading to a wider use of flame arrestor vents. These can work in two directions by preventing a flame from entering or leaving a hazardous area.

Many applications in the gas and petrochemical industries transmit or vent flammable gases through pipelines. If, however, there is air or oxygen in the system the gases or vapours may be ignited by a source either internal or external to the at-risk area.

The fitting of a porous ceramic flame arrestor vent can prevent a flame entering the danger zone and, due to its inherent strength, can also contain the forces of ignition

Another application that is increasingly using this principle is the recombination battery used in Standby Power Systems.

Features of Porous Ceramic Flame Arrestor Vents

- High Permeability
- Maximum Temperature 900 degrees C
- Chemical Resistance to pH9
- High Flexural Strengths
- Wide range of sizes and shapes

Typical Applications

- Tank Vents
- Incineration / Flare Stacks
- Lead Acid Batteries
- Off Gas Systems

Specialised Ceramic Flame Arrestors and Breather Vents for Lead Acid Batteries

Many lead acid battery manufacturers constantly look for ways to improve the overall efficiency and safety of their products. One of the main safety concerns is the effective dispersion of hydrogen and oxygen produced by electrolysis during the charging cycle. The accidental ignition of these gases can produce a flame which propagates back into the battery case causing an explosion.

Mantec manufactures high quality flame arrestors whose proven characteristics effectively allow these gases to escape whilst preventing a spark, ignition, or flame from penetrating the case.

Ceramics have the ability to continuously prevent flame propagation with the added benefit of maintaining their venting characteristics.

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Materials

Mantec Technical Ceramics Ltd has a range of standard ceramic materials, each having its own unique characteristics and capabilities. The material most commonly used for flame arrestors is CORALITH, the properties of which can be found in the table below.

Grade	Pore Diameter (Microns)		Porosity (%)	Permeability (Darcies)
	Average	Maximum		
C0	11	15	35 - 45	0.5 - 1.2
C9	20	25	35 - 45	1.8 - 3.4
C8	30	35	35 - 45	3.7 - 6.7
C6	50	70	35 - 45	16.6 - 31.0
C5	90	110	35 - 45	38.4 - 71.1
C4	155	200	35 - 45	119 - 223
C3	300	400	35 - 45	227 - 423
C2	525	650	35 - 45	373 - 693

CORALITH grades are aluminosilicate particles bonded by glass. CORALITH can withstand hot and cold acids (not hydrofluoric acid or acid fluorides), alkaline solutions up to pH9 and hot gases up to 900° C.

Geometry

Flame arrestors can be supplied in disc, tubular or cup shaped geometries. Mantec can supply the ceramic component alone, or alternatively, we can mount the ceramic part onto the customers' bespoke end caps or fittings, examples of which can be seen in the photo to the right.

Typical sizes and grades for porous ceramic discs

The table below shows typical sizes and grades of ceramic discs supplied for use as flame arrestors.

Dia mm		Thickness mm	Grades
13.2	x	3	C4, C5, C6, C8, C9, C0
17.9	x	6	
28	x	6	
31.9	x	6	
38.1	x	4.5	
50	x	3	
67.5	x	3.2	
70	x	6	

