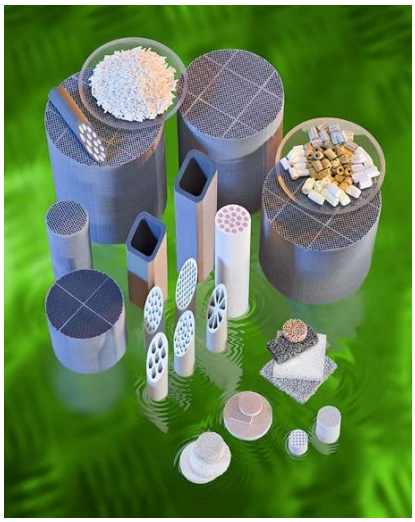
“Diesel Soot Filtration by CTI”

Silicon Carbide Composite Diesel Particulate Filter

CTI High Silicon Carbide content Diesel Particulate Filter is bonded with a specific inorganic composition based on refractory oxides chosen for their :

- High temperature controlled Viscosity
- Resistance to chemical attack
- Thermal expansion similar to SiC

This composite SiC DPF is using a patented manufacturing process which enables the production of many different sizes and shapes at a very competitive cost.



Physical & Structural Properties		
Open porosity (%)	46	
Mean Pore size (µm)	15 or 20	
Cell Density (cpsi)	190	290
Cell Pitch (mm)	1,85	1,50
Wall thickness (mm)	0,35	0,30
Isostatic Strength (MPa)	> 10	
Compressive Strength A (MPa)	18	20
Compressive Strength B (MPa)	7	8
Compressive Strength C (MPa)	2	3
Thermal conductivity (W/m.K) @473°C @947°C	1,20 1,40	
Coefficient of thermal expansion ($.10^6$/K) @1000°C	5,0	
Substrate density (g/cm^3)	1,62	
Filter Density (kg/l)	0,71	0,75
Maximum soot load (g/l) with Fuel Born Catalyst	8	
Filtration area (cm^2/cm^3)	0,808	0,948

With more than 7 years of experience, CTI has developed with the IFP (www.ifp.com), a patented composite SiC particulate filter which shows:

- Excellent PM filtration efficiency > 99% reaching target Euro 5 and 6 emission limits.
- High thermal conductivity leading to a very efficient and complete regeneration.
- Very good mechanical performance, similar to ‘the best in class’ available on the market.
- Outstanding chemical resistance to acids and ashes.
- High durability even after harsh ageing treatments.
- Good adhesion to washcoat formulation proposed by catalyst manufacturers.

The CTI’s composite DPF has been implemented for many years on buses and trucks with trouble free servicing.

General Recommendations:

1/ If catalyst coating :

In order to preserve full stability during application of high volume filters (greater than 7 liters), it is strongly recommended to use a calcination ramp of less than 100°C/hour (heating/cooling) during catalyst implementation.

Due to its very particular behaviour during heat treatment, especially designed to sustain internally applied high rate thermal shock, CTI’s DPF needs to be carefully treated during catalyst calcination.

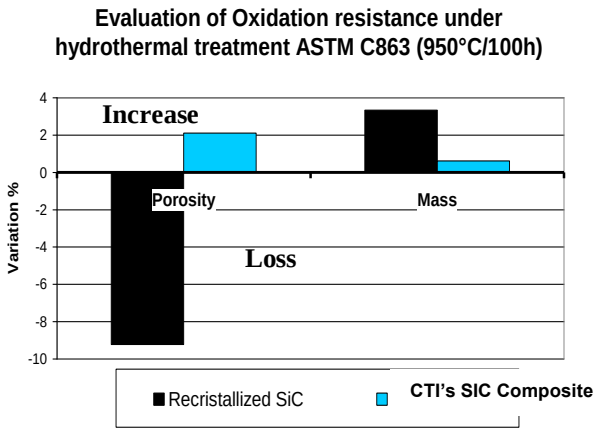
For any question please contact technical support at “sales@ctisa.fr ”

2/ In the applications, soot loading should not exceed 8g/l.

S.A.S. Capital 220.000 Euros Siège social 30340 SALINDRES R.C.S. Nimes B 377554506 SIRET 377554506 00032

Oxidation Resistance: Hydrothermal Treatment (950°C/100h)

Laboratory testing realized by *ICAR* was done according to ASTM C863. Two DPF, SiC Composite and competitor SiC filters are following hydrothermal treatment at 950°C during 100h, to evaluate their oxidation resistance.



The CTI's SiC Composite filter is obviously less sensitive to the oxidation than the competitor SiC filter, as it is shown by the mass and the porosity variations.

The competitor's SiC filter is more sensitive to oxidation and its transformation to SiO2, explaining the mass and the thermal expansion increase. The formation of this SiO_2 phase results in closing the porosity and so increases the pressure drop in long life cycling.

The SiC Composite is less sensitive as oxides enter into its composition. There is less formation of SiO_2 phase and conversely results in increasing porosity and reducing pressure drop.

The SiC Composite shows better resistance to oxidation in long life cycling and keeps good thermal expansion.

SIZES AVAILABLE * (in 190/290 cpsi)

Size Ø	Vol. in liter	Filter mass Kg		Filtration Surf m^2	
CPSI		190	290	190	290
5.66"x6"	2.47	1.75	1.86	2.00	2.35
5.66"x10"	4.12	2.93	3.09	3.33	3.91
7.5"x6"	4.34	3.08	3.26	3.51	4.12
7.5"x9"	6.51	4.63	4.89	5.26	6.18
7.5"x10"	7.24	5.14	5.43	5.85	6.86
7.5"x12"	8.68	6.17	6.52	7.02	8.24
7.5"x14"	10.13	7.20	7.60	8.19	9.61
9"x6 "	6.25	4.44	4.69	5.05	5.93
9"x8 "	8.34	5.92	6.26	6.74	7.91
9"x10"	10.42	7.4	7.82	8.42	9.88
9"x12"	12.50	8.88	9.38	10.11	11.86
10"x10"	12.87	9,14	9,65	10.40	12.20

Size Ø	Vol. in liter	Filter mass Kg		Filtration Surf. m^2	
CPSI		190	290	190	290
10"x12"	15.44	10,97	11,58	12.48	14.64
10"x15"	19.31	13,71	14,48	15.60	18.30
10.5"x12"	17.03	12,09	12,77	13.76	16.14
11.25"x6"	9.77	6,94	7,33	7.90	9.27
11.25"x9"	14.66	10,41	11,00	11.85	13.90
11.25"x10"	16.29	11.57	12.22	13.16	15,44
11.25"x12"	19.55	13.88	14.66	15.79	18.53
11.25"x14"	22.80	16.19	17.10	18.43	21.62
12"x10 "	18.53	13.16	13.90	14.97	17.57
12"x12"	22.24	15.79	16.68	19.97	21.08
12"x13"	24.09	17.11	18.07	19.47	22.84
12"x14"	25.95	18.42	19.46	20.96	24.60

***For other sizes, please contact us**

Recommendations for canning procedure (only for European operations), please refer to:

★3 M Automotive Europe ; product : Interam ; Carl-Schurz, Strasse 1 ; D- 41 453 NEUSO
(Tel : +49 2131 143134)

★Unifrax GmbH ; Product : XPE-NV ; KappelerSh. 105 – D-409 DUSSELDORF GERMANY
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