TRION®
air purification systems

QUICK FACTS

CARTRIDGE FILTERS

Industry: Any process involving dust and heavy dry smoke removal

Contaminate: Dusts, Granular Material, Powders, Welding Smoke

Equipment: Single or multiple cartridge collector using multi-pleat media

Benefits:
High inlet loading capabilities
High efficiency
Self cleaning - Reusable

Special Considerations:

1. The collected material:
- Size: 100 micron or below
- Loading: lbs/hr or grains/ft^3

2. Release Characteristics of the collected material:
- Moisture content: dry, not sticky
- Shape: smooth, no sharp edges or hooks, non-stringy

3. System:
- Temperature: 200°F to 350°F (special)
- Compressed air: volume, pressure (80-100psi), clean and dry, no oil or water
- Operation: cycle and downtime (for off-line cleaning)
- Airflow: volume and static pressure
- Ductwork: size and design
- Capture system: source or ambient
- Location
- Code and other restrictions
- Cleaning frequency

4. Media:
- Required media efficiency
- Media selection
- Air-to-Cloth ratio: air flow to the surface area of the collection media (cfm/ft^2)

	collected material release characteristics					
Cartridge Media Selection (1)	**Cellulose**	***80/20 Cellulose/ Polyester**	**Polyester**	**PTFE Spun Bond**	**Aluminized Spun Bond (5)**	**Recommendations or Considerations**
Pressure Dropinitial Cartridge Initial Pressure @ Startup, Inches H2O @ 500 CFM	0.53"	0.58"	0.69"	0.73"	0.69"	—
Carbon Black	F	S	S	E	E	FR,SG
Alumina(3 & 4)**	CF	CF	CF	CF	CF	EV, SG
Baking Powder**	F	S	S	E	S	EV, SG
Cake Mix**	P	F	F	S	S	EV, SG
Cement	S	S	E	E	S	A,H
Clay	S	S	E	E	E	A,H
Coal(3)**	F	S	S	S	E	A,EV,FR,SG
Cosmetics	F	S	S	S	S	O
Detergents(3)**	NR	P	F	S	S	EV,H
Diatomaceous Earth (8)	S	E	E	E	E	—
Feeds(3)**	F	S	E	E	E	A,EV,SG
Fertilizers	F	S	E	E	E	A,EV,H,SG
Fiberglass	NR	P	S	S	E	SG
Flyash	F	S	S	E	E	A,FR
Grain(3)**	F	S	S	E	S	A,EV,H,SG
Graphite	P	F	S	E	S	A,EV,SG
Gypsum	S	S	E	E	E	A
Lime	S	S	E	E	E	—
Limestone	S	S	E	E	E	A
Metal Polishing (2 & 4)	F	S	S	S	S	A
Metal Grinding (4)	P	F	S	E	S	A
Minerals (Rock)	S	S	E	E	E	A
Powder Paint	F	S	S	E	E	EV,SG
Plaster	S	S	E	E	E	A,H
Salt	S	S	E	E	E	A,H
Sand (sand blast)	S	S	E	E	E	A
Soda Ash	S	S	E	E	E	A
Starch	F	F	S	E	F	EV,SG
Stone or Ceramic	F	S	E	E	E	A
Sugar **(3)	P	F	S	E	S	A,H,EV,SG
Textiles (Short, Straight Fiber)	NR	NR	S	S	NR	—
Tobacco	S	S	E	E	E	H
Welding / Ambient (6)	S	S	E	E	S	FR
Welding / Source (6)	F	S	E	E	S	FR
Galvanized Weld	P	F	S	E	S	FR,O
Oily Welding* (6)	NR	NR	P	S	P	FR
Air Arching(7)	CF	CF	CF	CF	CF	FR
Plasma Cutting*	NR	NR	P	S	NR	FR
Laser Cutting	NR	S	S	E	F	FR
Woodworking **Cutting** **Finish Sanding**	P P	P S	F S	F E	F S	CF CF

Excellent	**E**
Satisfactory	**S**
Fair	**F**
Poor	**P**
Not Recommended	**NR**
Consult Factory	**CF**
Abrasive	**A**
Explosive Venting	**EV**
Fire Retardant	**FR**
Hydroscopic	**H**
Oily	**O**
Static Grounding	**SG**

EXPLOSIVE POTENTIAL **
HIGH AIR TO CLOTH RATIO *

THE DATA OPPOSITE IS BASED ON (Continuous Operation) ON-LINE CLEANING with a standard Reverse Pulse Cleaning system.

*NOTE: The use of cartridges in this application will typically require significantly more static pressure to allow for loading equilibrium than normal.

LEGEND:

(1) This chart is for guidance purposes only and is based on a loading of 2.0 grains/cfm, 50% or less relative humidity, an average particle size of 5 microns or larger, a temperature of 150°F or less, and dry non-tacky material.

(2) Metal Polishing: absent of any rouge or oily waxy material

(3) Explosive substance, advise using explosive resistive components and installation methods and procedures. Contact insurance carrier and follow all national and local codes.

(4) Collection of light metal dusts (Aluminum, Titanium, Magnesium, etc.) require special precautions.Contact insurance carrier and follow all national and local codes.

(5) Filters designed for static electric discharge must be properly grounded.

(6) Dry welding: the absence of any visible oils or coatings, and the absence of oil on a clean white cloth when firmly wiped across the surface. Items with very light oil coatings may be cleaned if the proper, usually higher air-to-cloth ratios are taken into consideration. Allow for increased static pressure due to loading.

(7) Air Arching: cartridge media not recommend. Consider the use of disposable filter media

(8) Pre-treat is the application of an inert low bulk density, high permeability protective powder coating that when applied to a new cartridge improves efficiency at start-up, prevents small particles from penetrating the media, aids in preventing filter blinding and improves dust cake release in the presence of light oil or moisture. Field apply pre-coat at a rate of 3.5 pounds to 1,000ft² of media for best results.The reverse pulse cleaning cycle can be improved if the collection equipment blower is shut down and the reverse air pulse cycle is turned on (off-line) for multiple pulses per cartridge.

CONSIDERATION SHOULD BE GIVEN TO THE FOLLOWING:

- Air pressure
- Compressed air volume requirements
- Duration of cleaning cycle
- Time allowed for material settling following the last pulse
- Clean, dry filtered compressed air
- Air pressure recovery time between pulses

NOTES:

(A) The table is a general guide of collector media. The intended purpose of this table is to aid in avoiding non-recommended media for applications in general. Every application has unique characteristics which require that a media selection incorporate past experience in the selection of a collection media.

(B The media is generally 95+% ASHRAE Dust Spot Collection efficient for 0.5 micron particle sizes and above.

(C) See associated Trion Quick Facts Data Sheets for additional information on static pressure and sizing.

(D) Pressure drop is based on an air velocity of 1.8 ft/minute per square foot of media surface.

(E) If there is a presence of oil or any other aspect of the collected material that may affect release characteristics from the filter media, collect a sample for factory review.

(F) Always confirm that the compressed air lines are clean, dry, oil free and have the proper filter and eliminators or dryers to maintain this condition.

(G) In general any system recommended to have explosion venting or fire retardant cartridges should also be fitted with a fire suppression system.

(H) Any system handling abrasive material should incorporate an abrasion resistant inlet deflector.

APPLICATION INFORMATION
REQUIRED FOR PROPER SELECTION OF FILTER CARTRIDGE MEDIA

(1) Airflow/gas stream volume in cubic feet/minute. ___CFM
(2) Inlet temperature. (Dry Bulb °F) ___°F
(3) Inlet Relative Humidity. (Wet Bulb °F or lbs/hr H_2O) ___% RH
(4) Inlet dust loading. (Grains per cubic foot) ___gr/ft³

$$\frac{\text{Pounds/Hour}}{\text{60 Minutes/hour}} \times \frac{\text{7000 Grains/Pound}}{\text{Air Volume CFM}} = \text{gr/ft}^3$$

(5) Method of cleaning and duration of cleaning cycle. Cartridge cleaning with system blower and process equipment turned off (off-line) or with the process equipment or system blower operating (on-line).
(6) Capacity of air compressor and method of eliminating moisture and oil.
(7) Process performed; dust collection, sand blasting, grinding or polishing, woodworking, weld smoke.
(8) Nature of the material to be collected: dry, wet, oily, sticky, powder, granular, stringy, rounded edges, sharp edges, spiny.
(9) Available power Voltage/Hertz/Phase.
(10) Spark generation or explosive potential of the process or collected material.
(11) Method of collecting and removing captured material, ie., tray, hopper with 55 gallon drum, dumpster.
(12) Cartridge cleaning method; reverse air pulse or internal automatic cleaning system.

CONTACT THE FACTORY FOR INFORMATION ON THE FOLLOWING

- Hydroscopic or agglomerating materials
- High temperature applications
- Abrasive applications
- Presence of any oil, water or other liquids
- Tacky or sticky material
- Long stringy or fibrous material
- Chemical compatibility concerns
- Explosive/Fire Hazards
- High pressure requirements
- Heavy material loading
- Special cleaning considerations
- Options for more efficient cleaning

FOR A MORE EFFICIENT CLEANING SEE INFORMATION ON TRION'S ICS INTERNAL CLEANING SYSTEM !

Remember the more frequent and the more efficient cleaning the BETTER!

Better cleaning means extended media life and better system performance.

SEE ASSOCIATED TRION QUICK FACTS FOR ADDITIONAL INFORMATION ON CAPACITY AND CLEANING CHARACTERISTICS. CONTACT TRION FOR ADDITIONAL ASSISTANCE IN SELECTING THE PROPER EQUIPMENT FOR A PARTICULAR APPLICATION.

TRION
Air Purification Systems

CERTIFIED ISO 9001