

FACT SHEET ON I-SA® CONDITIONING AGENT

In order for fabric filter bags to be an efficient part of a dust collection system, they require a residual dust cake on their surface. The dust cake is the initial layer of particles that form on the filter bag surface when the fan is turned & a process is vented through the bag house / dust collector. The dust cake is the actual filter in a dust collection process, not the fabric of the filter.

PROBLEMS CAN START ON THE FILTER SURFACE

Filters that are new or recently cleaned allow greater airflow than filter bags covered in dust during the collection process. Particulate collected from an industrial application will coat clean air filter surfaces rapidly, carried along by the airflow passing through the filter media. But particles coming straight from the process can create collection problems:

1. Some processes produce a high percentage of particles too small to be collected by the fabric alone, and they can bleed through small air passages, resulting in emissions.
2. Some processes have moisture or hydrocarbons in the gas stream; these can cause the particles to form a coating on the filter media surface that reduces or even completely block airflow.
3. New filter fabric is porous, causing air to pass through at a higher velocity than through filter media with a coating of dust. Particulates carried at a higher velocity can become embedded in the new filter media, causing blockage where they stop. When enough blockage has formed that proper airflow through the filter media is restricted, the filter bags are said to be "blinded".

BAG HOUSE / DUST COLLECTOR "PUFFING"

When the bag house / dust collector cleans, the dust cake falls off the bag surface to the hopper, leaving the fabric exposed. When the collector of compartment returns online, the initial airflow is greater from reduced resistance, and fine particulate can be sucked through the fabric, resulting in momentary visible emissions at the stack, known as "puffing". I-SA® powder is lightweight, and a control layer will even stay on the bag surface during normal cleaning. Other substances used to pre-coat the filter bags typically much heavier than I-SA® powder and will fall off the bag surface with cleaning or if not under pressure from the fan.

DAMAGED BAGS

Bag House / Dust Collector Operators have reported that use I-SA® Conditioning Agent to form a dense, porous dust cake on bags already blinded with particulate and damaged by agglomeration has allowed production to continue without emissions or high differential pressure. A coating of I-SA® powder helps by spreading the restricted airflow across a wider area on the surface of blinded bags to provide a more even collection surface, resulting in lower differential pressures.

I-SA® provides a coating honeycombed with air passages above the fabric that helps particulate even on areas of blinded fabric. The varied shapes and sizes of I-SA® particles in this filtering dust cake prevents tight compaction-air passages constantly exist, keeping pressure drop down and maximizing airflow for production.

MOISTURE & HYDROCARBON-LADEN GAS STREAMS

Many processes have either moisture or hydrocarbon carryover to the bag house due to combustion process. This can create problems with dust agglomeration coating the bag, and moisture can also promote rust damage on the collector / bag house compartments. The moisture can also react with chemicals in the gas stream to form acids that attack fabric and steel components of the collection system. I-SA® powder absorbs three times its own weight of moisture and hydrocarbons, then falls off the bag during the cleaning cycle.

HELPS SOLVE EXISTING BAG PROBLEMS

It's not uncommon for bag houses to experience issues during production. Using I-SA® Conditioning Agent as a precoat can help avoid problems that plague operations, but it can also help problems already in progress.

Spot-changing (Mixing new and old bags)

When damaged bags in a collector are replaced one-by-one with new filter bags that are intermixed with older filter bags, the new filter bags can have up to three times higher flow rate than older ones because the new fabric has no obstructions and less resistance. The increase in airflow through the new filter bags raises the velocity of the particulate hitting the filter bag. Left unprotected, the filter media interstices, can become plugged by particulate not caught in the loft of the filter media. As more air passages become blinded, the pressure resistance at the remaining openings increases, and differential pressure rises rapidly, even though the bags have been recently replaced.

I-SA® REDUCES RISK OF BAG HOUSE / DUST COLLECTOR FIRES

If your operation has the potential of hot sparks in the gas stream entering the bag house / dust collector, then I-SA® powder can help protect your collector. A properly maintained layer of I-SA® powder provides a protective barrier between the fabric and sparks in the gas stream and can help extinguishing a spark before it damages the bag.

During field testing, I-SA® powder prevented sparks from igniting filter fabric by extinguishing the spark when it encounters the powder.

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THE SOLUTION COMES FROM I-SA® CONDITIONING AGENT

The solution is to have an effective dust cake that filters the particulate, helps maintain proper airflow through collector, & helps protect the filter media from damage. That solution is best achieved by using I-SA® Conditioning Agent to coat the filter bags before collecting process particulate.

I-SA® Conditioning Agent is a white, chemically inert powder composed of millions of particles of various shapes and sizes. When used as a base coat on Filter Bags, I-SA® powder creates a three-dimensional porous dust cake on the filter bag surface. This controlled dust cake diffuses the air stream as it filters the fine particulate, meanwhile protecting the surface of the filter bags from impingement (particle embedding in the fabric), agglomeration (non-porous coatings mixed with moisture or hydrocarbons), bag blinding (particulate blockage of the primary airflow passages in the fabric)

PROVEN TO REDUCE DIFFERENTIAL PRESSURE

Testing proved I-SA® Conditioning Agent is an effective conditioning precoat that can reduce differential pressure while providing high filtration efficiencies. Independent testing showed that I-SA® Conditioning Agent was able to increase collection efficiency dramatically while operating at a differential pressure 3 – 4 times less without an initial dust cast of I-SA® powder.

BENEFITS OF I-SA® POWDER

- Increases bag life by reducing filter media blinding.
- Absorbs damaging hydrocarbons and moisture.
- Prevents fine particulate impingement in the filter media.
- Inhibits sparks carried over from combustion processes.
- Promotes even airflows for lower differential pressure.
- Stays on the filter bags even at low fan velocities and during cleaning cycles.
- No detectable "crystalline" of free silica content.
- Provides a protective barrier coating on the filter media surface.
- Economic: The light density of I-SA® powder results in far greater filter media coverage when compared to conventional pre-coating powders.



SUCCESSFUL APPLICATION OF I-SA® CONDITIONING AGENT INCLUDE:

ASPHALT

Drum Plants
Batch Plants
Asphalt Plants

CEMENT

Cement Kiln
Cement Plant

CHEMICAL

Chemical – Paints & Pigments
Chemical – Agriculture
Chemical – Petroleum, Refining, Coal Products

FERROCHROME

FOUNDRY

Foundry/Steel-Railroad
Foundry/Grinding
Foundry/Machine Shop
Shotblast/Furnace Bag House
Furnace, Grinders

GALVANIZING

INDUSTRIAL BOILERS

Industrial Boiler
Coal-Fired Boiler
Hog-Fired Boiler

NON-FERROUS METALS

POWER PLANTS

RUBBER

Lead Extruder Pots

SECONDARY SMELTING

Aluminum Smelting

STEEL

UTILITY BOILERS

Coal-Fired Boiler

WASTE TO ENERGY

Medical Waste
Soil Remediation
Metals

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