FIRE DETECTION DEVICES should be connected to a fire detection control panel in accordance with NFPA 72.

Regular maintenance and lubrication in accordance to manufacturer’s recommendations should be done on all Abort Gates and Dampers Spark detectors should be installed upstream of the abort gate.

VACUUM BLOWER PACKAGE

EXHAUST VACUUM AIR

BIN

FEED HOPPER

ROTARY VALVE

PRESSURE AIR

PRESSURE AIR PRODUCTS

MAGNETIC SEPARATOR

Will remove foreign metals capable of causing ignition of combustible materials.

PRESSURE VALVE

ROTARY AIRLOCK

AIR IN-TAKE ADAPTER

VACUUM AIR/PRODUCT

FILTER RECEIVER

VACUUM FILTER RECEIVER

STATIC HAZARD All system components can conduct static electricity and should be bonded and grounded.

DUST HAZARD All components should be air tight and dust tight.

FIRE HAZARD Maintain the heat of all external processing equipment surfaces in an area containing a combustible dust to below 80% of the minimum ignition temperature (NFPA 650).

DUST COLLECTOR

Minimize internal ledges to reduce dust. Hopper bottoms should be slopped.

Deflagration venting of dust collector directed to a personnel restricted area, 20 ft. from exterior wall.

Deflagration pressure should be in accordance with NFPA 69.

MAGNETIC SEPARATOR

Will remove foreign metals capable of causing ignition of combustible materials.

HOUSEKEEPING

Hopper bottoms should be slopped.

Deflagration venting directed to a personnel restricted area, 20 ft. from exterior wall.

Deflagration pressure should be in accordance with NFPA 69.

MAGNETIC SEPARATOR

Will remove foreign metals capable of causing ignition of combustible materials.

Other hazards

Dust on ducts overhead beams and posts which can contribute to dust clouds.

Light fixtures should be insulated regularly.

Inspection, testing and maintenance

Regular inspection of fire and explosion protection equipment, dust control equipment, housekeeping, potential ignition sources, electrical process, mechanical process equipment, process changes and lubrication of all bearings.

Any welding, grinding or other operations that produce sparks or open flame ignition sources shall be controlled by a hotwork permit system in accordance with NFPA 51B.

Lubrication shall be performed on all process equipment per manufacturers recommendations.

Housekeeping records should be kept for one year. Do inspections of equipment parts and components every three months or as needed.

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The intent of this infographic is to reduce explosion hazards in your facility. Please refer to the back of this infographic for NFPA (National Fire Protection Association) industry specific standards and more resources.
ACS recommends referring to NFPA (National Fire Protection Association) industry specific standards 654, 61, 484 and 664 to address dust handling and pneumatic conveying system requirements required for your industry.

Refer to the new NFPA 652 standard on the Fundamentals of Combustible Dust in aid with your dust hazard analysis.

For information on Explosion Protection by Deflagration Venting refer to NFPA 68.

For standards on Explosion Prevention Systems refer to NFPA 69.

Other Resources:
NFPA National Fire Protection Association
www.nfpa.org

CCPS Guidelines for Safe Handling of Powders and Bulk Solids

OSHA - Occupational Safety & Health Administration
www.osha.gov

Combustible Dust National Emphasis Program & Combustible Dust in Industry: Preventing and Mitigating the Effects of Fire and Explosions