Dust collection and suppression systems

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Extended with information on the 2019 update
https://www.canadianbiomassmagazine.ca/equipment-spotlight-dust-collection-and-suppression-systems-in-2019/?custnum=984832&title=&utm_source=E909&utm_medium=email&utm_campaign=190627AD

Canadian Biomass highlights some of the newest technology for collecting and suppressing combustible dust in pellet mills. Equipment is available from the following companies:

Martin Engineering

Martin Engineering has introduced a new insertable dust collector that features improved filtering and a smaller footprint, helping bulk material handlers minimize airborne dust at belt conveyor loading points. The Martin Insertable Dust Collector is an automatic, self-cleaning filter designed to remove dust from the air in conveyor loading and transfer points, silo vents, bucket elevators and screens. The smaller filter elements allow a significant reduction in the dust collector's "footprint," so it can be installed in locations where tight quarters complicate the installation of other systems.
www.martin-eng.com

Advanced Cyclone Systems

Advanced Cyclone Systems (ACS) is a company exclusively dedicated to the development and commercialization of high efficiency cyclone systems worldwide. Thanks to the superior efficiency ACS cyclones are a viable alternative to ESPs and Bag Filters for emission limit compliance in both biomass dryers and boilers. Hurricane cyclones are able to capture very fine dust with a Volume Median Diameter (VMD) of less than 10µm, achieving emissions as low as 30mg/Nm3.
www.advancedcyclonesystems.com

Rembe

Rembe has the expertise as innovator of flameless venting for indoor/outdoor explosion protection (Q-Box/ Q-Rohr); a comprehensive line of Rembe explosion panels and TARGO-VENT to help manage precious outdoor space utilization by reducing safety zones without compromising safety; Q-Flap NX and EXKOP isolation systems to prevent explosion propagation. Whether you handle/produce pellets, wood chips, particle boards, MDF, OSB and/or operate a sawmill, careful consideration needs to be given to proper explosion protection: venting and isolation. Think dust collectors, dryers, cyclones, screens, silos, and mills. Rembe Inc. will work with you to determine your specific requirements, develop a plan of action and assist in implantation to minimize downtime while keeping your plant and employees safe.
www.rembe.us

Benetech

Benetech's dust suppression systems provide a low maintenance, cost-effective, and reliable solution to combat pervasive problems that interfere with all aspects of your business. For over 35 years, Benetech's engineering team has been dedicated to the design, fabrication and installation of dust suppression systems. Benetech's approach has resulted in hundreds of satisfied customers who are now able to achieve year-round dust control. Through engineered innovations and tested and tried dust suppression agents, Benetech has become the leader in dust suppression products and services worldwide.
www.benetechglobal.com

ProcessBarron

Although mechanical dust collectors are used for many different material applications (i.e. coal, bagasse, cement dust, sinter, sludge, etc.) they are most commonly in used in boiler systems that are firing biomass. They have proven to be excellent system pre-cleaning devices that can greatly extend the life of an ID Fan and protect more sophisticated APC equipment downstream in the system.

Mechanical dust collectors remove a high percent of larger particles (over 15 microns) that are considered destructive to any downstream equipment, for a very small pressure drop (approximately 3.00" WG). Over the last several decades ProcessBarron has established itself as one of the most experienced and respected designers and fabricators of mechanical dust collectors in the U.S. The company offers several different sizes of dust collector tube assemblies, with the 24-inch tube size its standard offering for almost all medium and large biomass fired boiler applications.
www.processbarron.com

Englo

Englo's unparalleled product suite of dust extraction technology is second to none and tailor-made to solve any fugitive or hazardous dust problem. New to their offerings is the Englo's OPTIMAL Filtration System, which separates solids from slurry and has the ability to reuse both water and solids, further reducing costs. In partnering with EmiControls, Englo's broad solution offerings include the unmatched capabilities of EmiControls's misting cannon product line for dust, emissions and fire suppression problems. There is no one-size-fits all problem. Englo has the right solution for each customer. Wolftek is the distributor of Englo products for Western Canada.
www.wokftek.ca or www.engloinc.com

Ruwac

Ruwac's FRV1400 includes an explosion proof TEFC motor alongside a multi-stage centrifugal, high performance turbine and relief valve rated for 24/7 operation. This vacuum's "Bulletproof" modular housing is fully grounded and made from a durable carbon impregnated, compression cast composite backed by a lifetime guarantee. Each FRV1400 vacuum features a foot-actuated dustpan for dustless clean-up and Ruwac's industry-leading MicroClean filtration. Connecting your FRV1400 to the HEC-XLT-EX will prevent fine dust from prematurely clogging your vacuum filter. The pre-separation system features Ruwac's 12-inch high-efficiency cyclone and collects up to 97 per cent of fines prior to reaching the filter, reducing downtime and costly filter replacements in the process.
www.lattaequipment.com

Allied Blower

For wood processing facilities demanding larger system capabilities, Allied Blower & Sheet Metal has successfully certified a line of Back Blast Dampers (BBD's) that reach sizes up to 50 inches (1270 mm) in diameter. The BBD can resist a vented dust collector explosion reaching a Pred of 5 psi (0.35 bar) for dusts with a Kst of up to 200 bar-m/sec. This range provides safe operation for a large range of deflagrable dusts used in industry. When comparing the options of using a passive mechanical system or an active chemical suppression system the mechanical systems are perceived to have less maintenance costs due to simplicity in

function, design, training requirements, and the low frequency of inspections. With a mechanical BBD, mill staff do not need specialized training or tools when inspecting and keeping maintenance records for NFPA compliance, as they would require with an active chemical system. This results in more up-time, allowing for more production. Allied BBDs are built in Canada and designed for easy installation, inspection, and maintenance. The instrumentation meets North American standards to easily integrate into a plant or mill PLC system and is available in Class 2 Div 2. A combination of Allied BDD and an Allied's NFPA certified rotary feeders can provide NFPA compliant passive isolation for large sized systems.
www.alliedblower.com

SonicAire

SonicAire fans are industrial fans designed to proactively eliminate overhead combustible fibre and dust in your facility. Not only will employees enjoy a cleaner, healthier and safer work environment, but cleaning costs will be dramatically reduced. Overhead dust control fans also help keep you in compliance with OSHA and NFPA regulations. Airmax Systems is Western Canada's leading distributor of SonicAire fans. Airmax works with Canadian pellet manufacturers, sawmills and pulp mills to eliminate fugitive dust. Airmax is now offering the new SonicAire XD2 fan, certified for Class II Div 2 Hazardous Areas.

www.airmaxsystems.ca or www.sonicaire.com

BossTek

BossTek has introduced the newest model in its growing family of self-powered dust suppression equipment, as BossTek announces the debut of the DustBoss DB-30 Fusion. The new design is a versatile and transportable atomized mist unit, engineered with a workhorse electric motor and 30-kW generator. Permanently mounted on a rugged road-worthy trailer, the company's Fusion line up is proving to be a popular and effective means of delivering powerful dust suppression technology to sites that lack a convenient power source. The extremely water-efficient design consumes just 2.5 gallons per minute.

www.bosstek.com

Scientific Dust Collectors

Scientific Dust Collectors (SDC) offers the ability to calculate the potential horsepower energy savings available by using SDC's unique baghouse design. This unique nozzle-based baghouse filter design allows SDC to clean the filter media better than ever before. In addition, using this baghouse design eliminates the venturi at the top of the filter bag/cage. This results in a pressure drop reduction of 2" WC.
www.scientificdustcollectors.com

Kice

Spanning over half a century, Kice's experience in designing and building filter systems provides an insight unique in the market. Kice has studied filtration principles and developed some of their own, many of which are patented. For maximum operating efficiency, the dust must be allowed to settle into the hopper for discharge out of the system. If bags are spaced too closely together or if the housing size is too small, excessive "can velocity" results, holding the dust in suspension. Suspended dust can choke the system regardless of the cleaning mechanism and air to cloth ratio. Kice filters are conservatively designed to provide proper bag spacing which eliminates this potential problem. Kice filters are very efficient, up to and above 99.9 per cent, even with low micron dust.
www.kice.com

FLAMEX

The FLAMEX Spark Detection and Extinguishing System is a cost-effective solution for the prevention of baghouse fires and explosions. Drying and hammermilling operations among others can often cause sparks, which are typically the ignition source for process fires in wood pellet facilities. The FLAMEX System uses infrared detectors to identify sparks in ductwork and effectively extinguish them. The system can also be programmed to activate deluge valves, alarms, abort gates, and equipment shut down. FLAMEX is the first system of its type to gain Factory Mutual Approval and has been successfully used in numerous woodworking and pellet manufacturing facilities throughout North America.
www.sparkdetection.com

Fagus GreCon

The aggressive nature of processing biomass through drying, shredding, granulating and pelletizing processes create sparks or embers. These hazards are quickly transported along the production line through pneumatic conveying systems and can ignite product and waste dust causing fires and explosions. GreCon Spark Detection & Extinguishing Systems are a cost effective preventative system, which detect these hazards and activates counter measures before they cause fires or explosions. GreCon Spark Detection Systems are Factory Mutual Approved and can reduce your risk of fires and dust explosions in transport and collection system as outlined in NFPA 69, 654, and 664 standards.
www.grecon.us www.fagus-grecon.us

VETS Sheet Metal

Founded in 1921 VETS Sheet Metal serves Canada's wood and biomass industries' dust collection and HVAC needs with locations in Edmonton, Kelowna, B.C., and Surrey, B.C. The company's strength is building and installing dust containment, abatement and suppression systems that meet stringent NFPA guidelines and significantly reduce our client's cleanup and operating costs. VETS has installed numerous NFPA compliant systems with third party verified emission test results. A number of VETS' supplied and/or installed multi-cyclone systems have had impressive air emission readings measuring an average PM emission rate of 0.006g per KG of effluent particulate matter released in the atmosphere. This is 15 times below the maximum allowable emissions as per the Alberta government's 2006 code of practice for new sawmills (0.09g per KG of effluent).
www.vetsgroup.com

Aircon Corporation

Aircon Corporation designs and manufactures industrial air systems for dust control, pneumatic conveying systems, ventilation systems, and equipment. It offers baghouses, bin vents, compressed air filters, elevator leg filter units, and reverse air filters; and high efficiency and low-pressure cyclones. The company also provides equipment, including rotary airlocks, below roof separators, control panels, material handling fans, paper scrap rotary valves, and screw conveyors; components, such as ductwork, angle rings, structural steel, and flat back elbows; steel fabrication solutions; and spare parts. It offers engineered systems for woodworking, grain, paper trim, paper and folding carton, feed mill, and wood and biomass pellet, chemical, coal, food, plastic, foundry, and gypsum industries worldwide. The company was founded in 1976 and is based in Memphis, Tennessee.

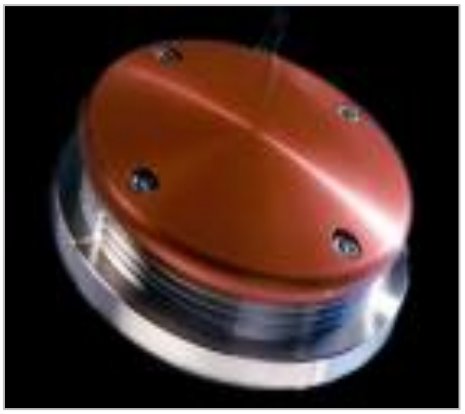
Fike

With over 70 years of field experience in providing dust explosion protection systems, Fike's team of engineers, application specialists and combustion researchers understand the complexities of plant processes, relevant code compliance and the critical nature of plant operation. Fike designs and provides venting, suppression and isolation systems to ensure the safest and most effective solutions for plant and employee protection. Fike's updated second generation ValvEx is a passive explosion isolation valve engineered to prevent flame and pressure propagation through interconnected pipes, ducts or conveying lines.
www.fike.com

Baum

Baum builds 14×18 through to 45×55-size feeders as well as firelock isolators, as per NFPA 69. Airlocks are considered passive isolation due to their 10 vane rotor construction. Vanes are always blocking a blast pathway, regardless of what position the rotor is in, while operating or not operating. Two-hp to 20-hp drives available are (American Dodge TXT or European SEW Eurodrive). Top and bottom flanges on airlocks are industry standard, and available dimensions include A1400 and A1410.
www.baumpneumatics.ca

IEP Technologies



The Smart/DS Dynamic Explosion Detector System by IEP Technologies is designed for demanding process applications requiring leading edge rate-of-rise explosion pressure sensing. Its unique ability to analyze rate of pressure rise and differentiate it from non-explosion pressure provides maximum explosion protection with minimal false alarms. Typical applications include dust collectors, drying systems, pneumatic conveying systems and reaction vessels. The SmartDS is designed as part of an explosion suppression system, installed and serviced by experienced IEP Technologies engineers and technicians throughout the world.
www.IEPTechnologies.com