



White Paper

Recycling - certainly safely! How to avoid Fires downstream of a “fiery” Process

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uring the recycling of scrap-metals a certain amount of dust is produced. Especially, when the recycling process involves pyrometallurgical steps there is the risk of glowing embers being transported into the filters, where they may ignite serious fires.

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The site in Ennepetal, Germany, produces several thousand tons of secondary raw materials in 33 halls.
(Picture: © Siegfried Jacob Metallwerke GmbH & Co. KG)

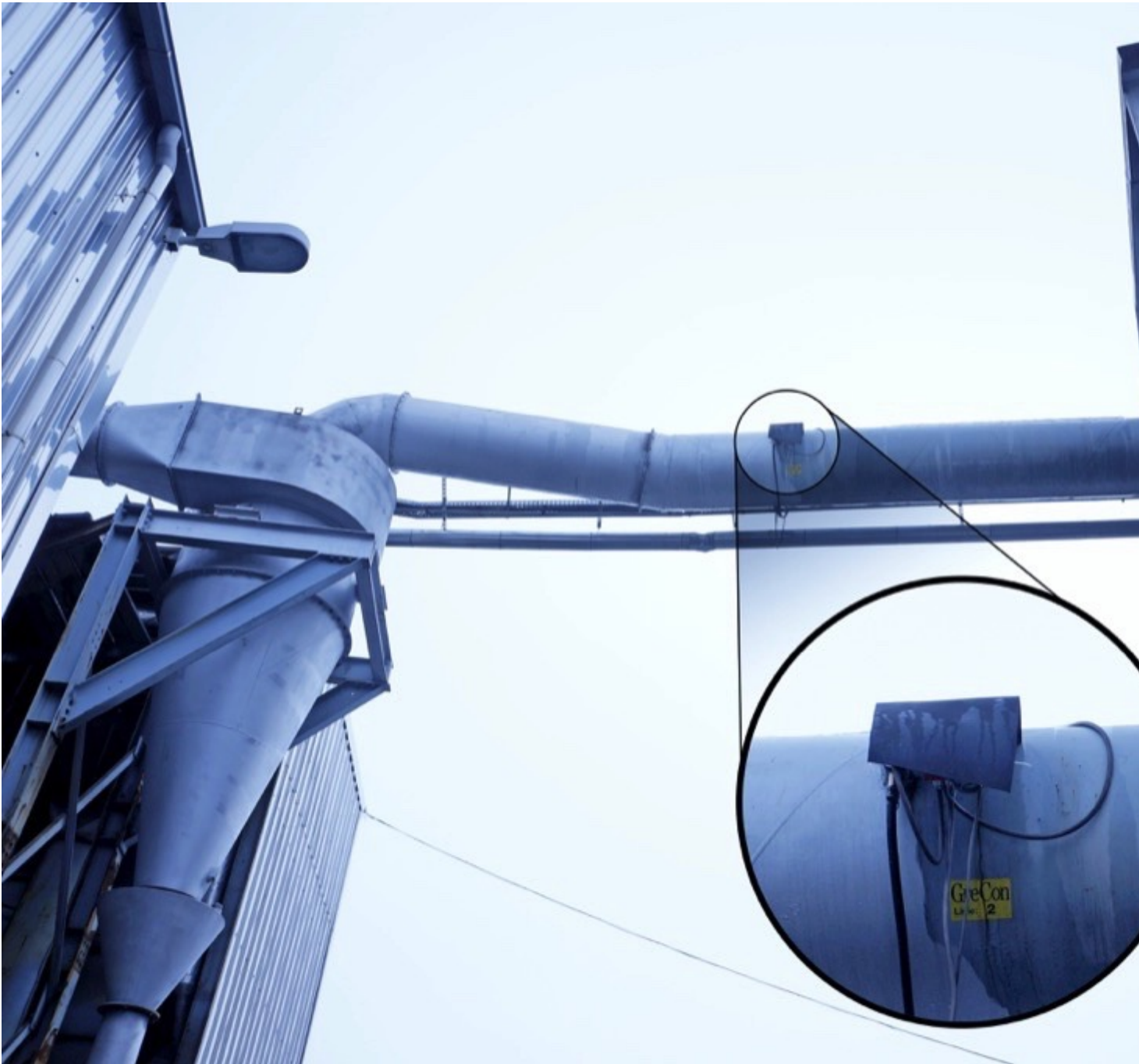
With the recycling of basic materials becoming more and more important, the demands on recycling companies are also increasing. Coping with continuously growing quantities requires a high availability of the production facilities which in turn necessitates to protect the facilities at risk against loss of production caused by fire. Fire risks are lurking in numerous phases of recycling processes. Foreign objects, process heat or machine parts can cause sparks, glowing embers or overheating which may lead to serious fires or explosions in shredders, belt conveyors or extraction systems. Siegfried Jacob Metal Works have been specialised in the recovery of metals for more than six decades. The company, located in Ennepetal, Germany, is known as a reliable supplier of high-quality secondary raw materials from aluminium to zinc. Founded as a scrap metal merchant in 1953, the company developed into one of the major metal recycling companies in Europe in the past 60 years. Today, several thousand tons of metal

are recovered per year at 10 sites with about 1 000 employees.

Metal Recycling - A hot Matter

The conditioning processes reach from classic sorting via pyrometallurgy up to hydrometallurgy. Especially in pyrometallurgical processes, there is a permanent risk of spark flight. Pyrometallurgical recycling simplified means that all the materials to be recycled are melted at high temperatures in dedicated furnaces and processed to customer-specific alloys which are delivered as ingots .Siegfried Jacob Metal Works produce up to 10 000 tons of metal out of scrap material per year in four melting furnaces, each providing a capacity of several tons. There is a permanent risk that sparks or glowing particles reach the filters via the extraction system where they would meet an explosive dust concentration and can cause devastating fires or explosions. Siegfried Jacob Metal Works want to reliably prevent such damaging events.

Protected against Sparks for many Years



Highly sensitive GreCon spark detectors, type FM 1/8, are mounted on the exhaust duct and detect sparks and glowing particles.

Siegfried Jacob Metal Works already protected their filters with automatic spark detection and extinguishment in 2001. "The spark extinguishing system makes us feel safe that no sparks can reach the filters", says Dr. Joachim Lüning, Factory Manager. The GreCon spark extinguishing system has been in operation for 15 years. The recycling company has the system, that is working very reliably, serviced on a regular basis by the GreCon service team - being 70 strong. Maintenance comprises numerous function tests of the system, the cleaning of

spark detectors and extinguishing devices as well as software updates of the control console, if necessary.

Prepared for the Future



An automatic extinguishing device is mounted directly before the filter and eliminates risks of fire before they can cause damage.

Siegfried Jacob Metal Works intend to continue their growth strategy. A modern wind energy plant is planned for power supply. Future expansions of the production capacity require new extraction systems. In preparation of this, the

control console of the spark extinguishing system was updated to the latest generation. The new control console (type CC 5016) is easier to operate and provides a graded alarm function thanks to programmable alarm thresholds as well as the option for possible extensions.

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