

Innovative explosion control protects production at Egger Holzwerkstoffe Wismar

As one of the leading manufacturers of wood materials, the EGGER Group produces and refines more than five million cubic metres of high-quality chipboard, medium-density fibre-board (MDF) and oriented strand board (OSB) at its 16 factories throughout Europe. The family-run company established in 1961 is expanding globally in its three strategic fields of business – decorative, construction and retail. So it's only natural that the group has given top priority to protection from explosions and other operational hazards.

At Egger Holzwerkstoffe Wismar GmbH & Co. KG's location in Wismar, explosion control hasn't only recently become a top priority. André Körting, Group Leader for Maintenance in the Work Preparation Department, explained how fundamentally important protective measures are to the business: "Operational hazards caused by fires and explosions constitute a great risk to the workforce at our factories and the environment. It is our duty and essential to the uninterrupted production of wood materials to eliminate or minimize risks." Mr Körting also explained that emergencies resulted in long downtimes for the production plant and that all unplanned machine stoppages generated financial losses that had knock-on effects on the continued success of the business. A glance behind the scenes at wood-processing plants reveals that certain areas of production generate dangerous quantities of wood dust. These flammable dusts can – in the right physical conditions – ignite and explode. Sensitized through seminars and the trade press, Egger consequent-

ly consulted Kidde Brand- und Explosionsschutz (KBE) based in Ratingen in Northrhine-Westphalia. KBE doesn't only offer conventional fire and explosion control solutions, it also focuses on special applications. Mr Körting explained what these were at Egger: "For us it was decisive that the solution employed to provide protection against explosions should in no way have a negative impact on our production process. But it did need to provide the best possible protection against dust explosions and their effects." Kidde Brand- und Explosionsschutz was able to meet the demand of avoiding costly modifications to the production technology by implementing special explosion pressure sensors along with high-rate discharge (HRD) extinguisher containers within the system. KBE also installed a so-called dynamic multi-sensor at the production plant in Wismar. Using a technically sophisticated alarm-processing system, the dynamic pressure detector recognizes pressure increases that are caused over time by explosions. Slow pressure increases caused by the processes themselves therefore will not trigger the system insofar as the static limits are not reached. Generally, to control explosions, KBE will calculate the quantity and positioning of the required HRD extinguisher containers in such a way that, in relation to the specified quantity of dust to be handled in the event of an explosion, the maximum reduced additional explosion pressure will not exceed the value specified for the container strength. With this solution, an explosion that has begun will be recognized within milliseconds and the explosion flames will be automatically suffocated with extinguisher powder. The maximum additional explosion pressure to be anticipated may thus in the best concentration conditions be minimized to the maximum reduced additional explosion pressure. This explosion suppression solution at Egger has been designed to reduce the additional explosion pressure to an extent that is as low as possible. Usually, the

equipment must be specified for Class 1, 2 and 3 dusts to resist additional pressures or shocks of 0.4 bar as caused by explosions.

Decoupling through extinguisher barrier

A detailed look at the solution employed in Wismar reveals that explosion decoupling has been achieved with an extinguisher block. This prevents flames from the explosion spreading to upstream plant components. Kidde Brand- und Explosionsschutz discovered that the distance between the sensor and extinguisher blocks was particularly hazardous. Due to existing or planned equipment, minimum or maximum distances are frequently not observed. The explosion suppression system installed in conjunction with the explosion decoupling system at Egger was adapted to the existing equipment, which constituted a low-cost constructive measure to provide protection against explosions. "This safety solution doesn't only protect colleagues at their place of work but also simultaneously enhances the image of our production operations," said a satisfied André Körting in summary.

Author: Catrin Jansen M.A.

Jansen Communications
PR & Marketing
Im Technologiezentrum Siegen
Birlenbacher Straße 18
57078 Siegen
Phone: (0271) 8902677
Fax: (0271) 8902699
Email: c.jansen@jansen-communications.de
www.jansen-communications.de
