An explosive subject

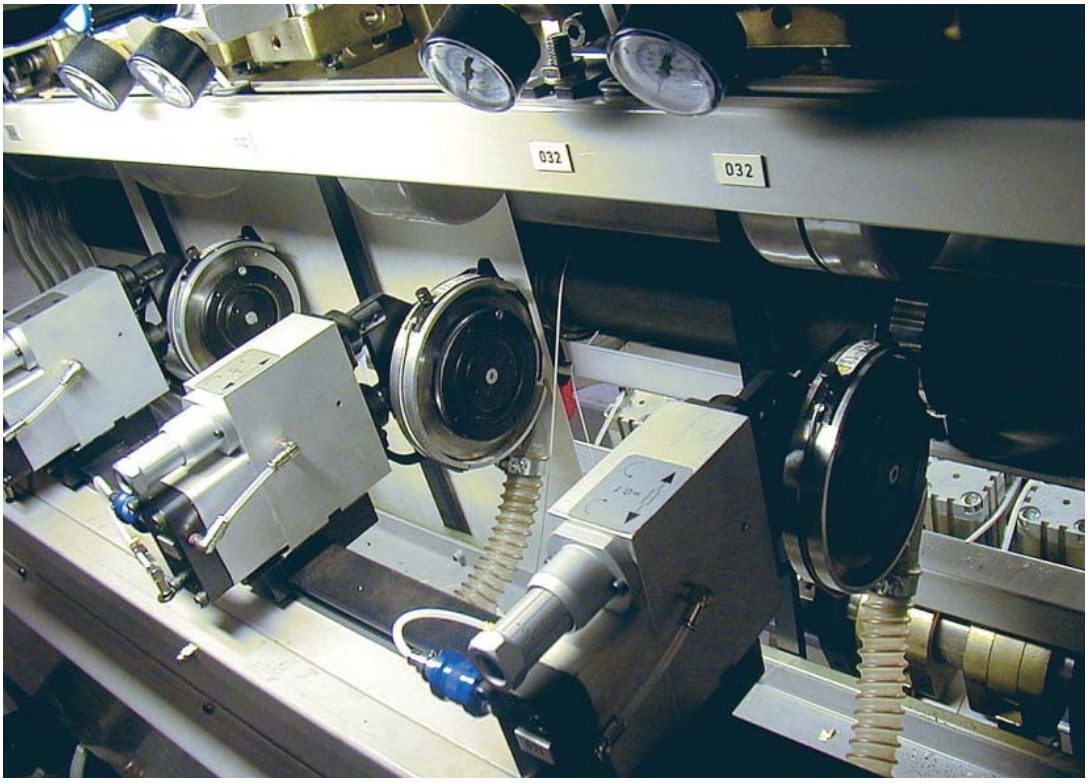
Dust in paper making operations presents both danger and health issues. Its control can also improve your bottom line as James Miller* explains

Dust is a huge issue for the paper industry, yet many aren't aware just how serious it really is, or even how its elimination will improve business turnover, and provide a 'greener' way of working.

It creates a dirty working environment, hinders production efficiency, lowers staff morale, affects product quality and creates a serious health and safety risk.

Many paper manufacturers do address the situation, but some are going the wrong way about it. Walk into many paper production plants today, and you'll see an abundance of cheap mobile dust extractors. Great, at least they're trying to do something about their dust situation. But in large production plants these can become more of a nuisance than to provide any real solution to the problem.

The mobile dust extractors are often not cleaned and looked after properly, because nobody wants to take responsibility for them. So they require a lot of maintenance. They're a health and safety nightmare with leads stretching across the production floor, which also then makes the production area look untidy (not good for client factory tours). Plus, they're often used at the wrong times, such as after production jobs, rather than during them. In fact, although they seem an attractive short-term solution, very quickly they



Cutters are a dust source: extraction in the process solves the issue

can prove to be a costly one that still doesn't get the results you are after.

The best way for any paper production plant to address the issue of dust is to install centralised vacuum systems for source extraction and vacuum cleaning. These can fit into the building and have a number of plug-in points running from them, avoiding the need for untidy leads running everywhere. The systems run 24 hours a day, and can even clean themselves.

Central vacuum systems can also save energy. Depending on the number of open outlets, the speed of the vacuum drive can be optimised, generating just as much vacuum as needed. And when no outlets are open the vacuum automatically switches to a saving mode, reducing carbon emissions and costs.

Dustcontrol UK has worked a lot in the newspaper industry over the years. Its systems are used mostly for extraction of dust from the slitters, where the paper is cut to the correct width, also from the folder cylinders, where the web is cut to the correct length. The benefit of our centralised systems is the smaller and neater pipework, and the fact that they can also be used as powerful vacuum cleaning systems too.

The seriousness of the issue...

However, there is a more serious side to using centralised vacuum systems. It's no secret that paper product manufacturing facilities see their fair share of dust. Over the years, many mill workers have complained of respiratory symptoms like chronic cough, chest tightness and wheezing and blame their prolonged exposure to paper dust for these health issues. Despite various claims, there are actually few studies that back the potential dangers of inhaling paper dust, and for many industry personnel, it's simply just a nuisance, or is it?

While the jury is still out in regards to the harmful effects of inhaling paper dust, there is mounting evidence it poses a threat elsewhere, as 'combustible dust'.

As an organic dust, paper can easily ignite if these three conditions exist:

- Heat (a spark from equipment)
- Fuel (paper dust)
- Oxygen

If these exist within a confined space, the equation for an explosion is complete, and while an initial fire or blast can be devastating, it can easily stir up and ignite nearby dust accumulations, leading to secondary explosions.

As we all know explosions can cause serious injuries, and even loss of life, thus highlighting the seriousness of the issue of dust.

Airborne dust and particulate waste from manufacturing processes are increasingly unacceptable in today's facilities when trying to achieve an efficient working environment. If physical concerns over product quality and environmental health are not enough, external pressures from COSHH and the ATEX regulations only go to build on the burden of having to maintain clean and healthy workplaces.

As of July 2003, organisations in the EU must follow the Atex directives to protect employees from explosion risk in areas with an explosive atmosphere.

Employers must classify areas where hazardous explosive atmospheres may occur into zones. The classification given to a particular zone, and its size and location, depends on

Dust extraction ducting integrates in plant operations

Cleanliness is a health issue: Extraction ducting is simplified by its modular components

the likelihood of an explosive atmosphere occurring and its persistence if it does.

Whilst it may seem that air cleaning through large-scale ventilation is a primary option for preventing an explosive atmosphere and avoiding Atex zoning, many paper product manufacturing facilities could dramatically improve their facilities through on-tool extraction directly at the source of the problem.

Many plant managers are realising that, rather than being a capital cost problem, an integrated dust extraction system can really help their business move forward unhindered by addressing health, working practice and quality issues

This involves the use of high vacuum systems to transport the waste to a centralised location for easy disposal or to intermediate pre-separators for potential recycling.

We've been working with companies all over the world for 40 years, improving production facilities and helping to set new standards of both environment and product quality.

A major benefit of a good high vacuum system is that it can also be used for general clean up as an 'in-house' vacuum, negating the need for both sweeping (which creates an enormous amount of hazardous airborne dust in itself) and mobile vacuums. As mentioned earlier, whilst mobile units can work in certain situations, they can easily fall foul of poor maintenance, are often fitted with unsuitable filtration quality and can cause trip hazards or manual handling issues.

With COSHH stating that the primary method of dust removal should be at its source and the fact that a proper in house cleaning schedule could actually reduce or eliminate the requirement for Atex zoning, it is no wonder that leading companies in many industries are now adopting high vacuum solutions.

Many plant managers are realising that, rather than being a capital cost problem, an integrated dust extraction system can really help their business move forward unhindered by addressing health, working practice and quality issues. A clean environment and healthy staff will reap benefits of reduced sickness costs and project a better profile to your own customers.

With all this in mind, centralised vacuum systems eradicate the issue of dust by providing a safe, cost-effective, green, solution.

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