If things smell wrong, REACH for safety

Unregulated raw materials particularly those produced outside the EU is a growing cause of concern in the conveyor world. *Les Williams* reports.

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One of the biggest concerns involves short-chain chlorinated paraffins. REACH regulations stipulate that SCCPs should only be used on a very restricted basis

HARMFUL AND in many cases potentially lethal substances used in industrial manufacturing is a cause of growing concern not only among the users of the finished products, but also those who come in contact with them in the course of their day-to-day work.

In the recycling and waste industry, conveyor belts are often the biggest rubber-based product in physical use.

When Dunlop Conveyor Belting decided to take a closer look they discovered that when it comes to conveyor belts, something smells wrong in more ways than one.

REACH (Registration, Evaluation and Authorisation of Chemical substances) regulation EC 1907/2006 came into force on 1 June 2007.

All European manufacturers (not just those who make conveyor belts) are legally obliged to comply with the regulations relating to chemicals, preparations (mixtures) and substances used to create finished products.

> Some chemicals can be identified by the unpleasant smell of the finished product

Although not commonly known by consumers, the use of "substances of very high concern" listed within the regulations must be registered with ECHA (European Chemical Agency) headquarters in Helsinki. Perhaps not unsurprisingly, many European manufacturers have chosen to ignore this legal requirement, either completely or at least partially because of the impact on production costs.

Manufacturers located outside of EU member states are not of course subject to the regulations. They are therefore free to use unregulated raw materials even though they may be prohibited or at least have strict usage limitations within the European community.

A chemical cocktail

So exactly what are the potentially dangerous materials used in modern-day conveyor belts?

Nylon, polyester and cotton fabrics or steel cords are used to create the 'carcass' of the belt. Apart from PVC covered belts mostly used for underground mining, rubber is most commonly used to cover and protect the carcass.

Although this may all sound relatively harmless, conveyor belts have to be designed to deal with a multitude of different demands including abrasion, heat, oil, ozone, fire, sulphur and much more.

Consequently, there are literally hundreds of different components from natural rubber right through to some of the most dangerous chemicals imaginable that are needed to create rubber compounds that, once vulcanised, can withstand the demands that the belt is designed to cope with.

A wide variety of chemicals are used as anti-degradants, anti-ozonants and also as accelerators.

Chemicals used as accelerators (essential for the vulcanisation process for example) include the use of primary amine–based sulfenamides, such as N-cyclohexyl-2-benzothiazole sulfenamide, and thiazoles, such as 2-mercaptobenzothiazole.

Netherlands-based Dunlop Conveyor Belting believes it is the very first conveyor belt manufacturer to achieve full compliance.

Production director, Dr Michiel Eijpe, maintains that complying with REACH standards should be in everyone's best interest.

"First of all we have a duty of care towards our employees who come into contact with the raw materials we use, the finished belts and even the samples handled by our sales people," explains Dr Eijpe.

"Just as importantly, we have a responsibility to our customers and those people, such as belt splicers, who handle our products on a regular basis."

Smelling the difference

One of the biggest concerns involves the use of short-chain chlorinated paraffins (SCCPs).

REACH regulations stipulate that SCCPs should either not be used at all, or at least only used on a very restricted basis because of their category 2 carcinogenic classifications and their threat to the environment.

The conveyor belt market is hugely competitive, and in most cases price is the primary selection driver.

The most significant impact on the cost price is raw materials. The pressure to keep costs to an absolute minimum has increasingly led to the use of sub-standard raw materials and recycled rubber (often of very dubious origin) and, almost inevitably, the use of potentially dangerous chemical substances.

Some chemicals, particularly artificial substitutes, are often used purely to minimise costs and can usually be identified by the unpleasant smell of the finished product.

According to industry experts, good quality conveyor belts usually have very little smell, whereas low quality belts often have a highly pungent aroma. In other words, you can literally 'smell the difference'.

An offer you can't refuse?

The influence of raw material costs on the selling price is highly significant. Although there can never be a fixed formula due to the wide variety of individual belt specifications, a general rule of thumb is that raw materials can represent up to 75% of the cost of producing a conveyor belt.

When faced with a price that looks "too good to refuse", it is perfectly reasonable to conclude that raw materials of questionable quality have been used.

In addition, materials (particularly high cost chemicals needed to create physical properties such as fire or ozone resistance) have either been used in reduced quantities or perhaps not at all. In reality, a combination of both is probably nearer the truth.

When a supplier is quoting a price that is significantly less (often 25% or more lower) than a competitor for what is claimed to be the same DIN or ISO compliant specification, the buyer really does need to ask the question "What will I be getting for my money?"

The chances are that the 'irresistible' offer will result in a belt with a much shorter working life.

At worst, supposedly high specification belts such as heat or fire resistant can be destroyed when put to the test. This can be very costly in more ways than one.

Working safe

Brussels is often accused of over-zealous regulation. But the use of potentially harmful chemicals and materials should not be compared with regulations concerning the straightness of bananas or the size of eggs.

Although it is not the intention to scaremonger, it is nevertheless important that users of rubber conveyor belts make themselves aware of potential hazards and ask for written confirmation from the belt manufacturer or supplier that the product they are buying has been produced in compliance with REACH EC 1907/2006 regulations.

At the same time, basic safety precautions for those working with conveyor belts should be applied. Firstly, it is preferable to wear gloves (if practical) when handling belts.

Secondly, it is advisable to wash your hands before smoking, drinking or eating.

Lastly, those involved in actions that may cause rubber dust to be produced, such as grinding for example, should wear a mask to prevent inhalation of dust particles. RWW

- *For more details on REACH regulations visit http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm*