



REACH for safety

Are your conveyor belts safe to handle?

When REACH (Registration, Evaluation and Authorisation of Chemical substances) regulation EC 1907/2006, first came into force in June 2007, it is fair to say that it largely went unnoticed by the conveyor belt industry. However, thanks largely to the benefit of 14-years of hindsight, most of us are now far more aware of the

importance and reasoning behind such regulations and the enormous duty of care we owe not only to our families and ourselves but equally to work colleagues and customers.

Since its inception, the various component parts of REACH regulations have continued to develop in line with ongoing scientific research. Not only have the goalposts moved, the playing field itself seems to be moving. Here, one of the industry's leading conveyor belt application engineer's, Rob van Oijen, brings us up to date with the regulations and issues a stark warning to those who continue to turn a blind eye to the very genuine safety aspects involved.

WHY WORRY?

The reason why the levels of hazardous chemicals used to make conveyor belts is such a cause for concern is twofold. Firstly, there are the proven harmful effects that 'substances of very high concern' (SVHC's) can have on humans and the environment. Secondly, and equally important, there is an ever-growing list of substances still under research that are suspected by scientists to have potential harmful effects. Sadly, history is littered with examples of substances (asbestos for example) that were thought to be harmless at the time but ultimately proved to have seriously damaging long-term effects.



We have a duty of care to our families, our colleagues and the environment.



Those physically working with conveyor belts need to be safeguarded.

As far as conveyor belts are concerned, those who regularly work with them as part of their job role, such as conveyor maintenance staff and belt splicers for example, are potentially at greatest risk and therefore most in need of safeguards. Fortunately, at least as far as Europe is concerned, very strong regulations are in place to protect humans and the environment in the form of REACH.

WHAT IS REACH?



REACH was established by members of the EU with the specific aim to improve the protection of human health and the environment through the better and earlier identification of the intrinsic properties of chemical substances. This is achieved by the four processes of REACH, namely the registration, evaluation, authorisation and restriction of chemicals.

"No data no market": The REACH Regulation places direct responsibility on industry to manage the risks from chemicals and to provide safety information on the substances. Manufacturers and importers are required to gather information on the properties of their chemical substances, which will allow their safe handling, and to register the information in a central database in the European Chemicals Agency (ECHA) based in Helsinki. The Agency is the central point in the REACH system. It manages the databases necessary to operate the system, co-ordinates the in-depth evaluation of

suspicious chemicals and build and maintain a public database in which consumers and professionals can find hazard information.

The Regulation also calls for the progressive substitution of the most dangerous chemicals (referred to as "substances of very high concern") when suitable alternatives have been identified. One of the primary reasons for needing stricter regulation was that as modern technology advanced at pace, new substances were regularly being developed and introduced into the market in Europe without sufficient research data or regulatory safety control. Most of these new substances lacked information on the potential hazards that they might pose to human health and the environment. One of the key objectives of REACH was therefore to fill these information gaps to ensure that industry is able to assess hazards and risks of the substances, and to identify and implement the risk management measures to protect humans and the environment.

THE USE OF CHEMICALS IN CONVEYOR BELT MANUFACTURING

The vast majority of the rubber used to make modern-day conveyor belts is actually synthetic or, at most, contains only a relatively small element of natural rubber. In basic scientific terms, the creation of rubber compounds (rubber compounding) is the process where a range of 'specific task' chemicals, reinforcements, resins and a variety of other substances are mixed together with rubber polymers.

The most common polymers used in conveyor belts are Styrene- Butadiene rubber (SBR) and Nitrile rubber (NBR). The chemical agents form chains of polymers to form rubber compounds that will ultimately be vulcanised to create the finished product.

There are literally dozens of different components that are used to create the various rubber compounds, such as anti-degradants, anti-ozonants and also as accelerators (essential for the vulcanisation process for example). These components include primary amine-based sulfenamides, such as N-cyclohexyl-



SVHC – Substances of very high concern.



Hundreds of different chemical components are used to create rubber compounds.

2-benzothiazole sulfenamide, and thiazoles, such as 2-mercaptobenzothiazole. It is an inescapable fact that to make some rubber compounds it is necessary to use chemicals that are extremely dangerous in their own right. What REACH does is strictly limit the amounts of certain chemicals that are used in each product, encourage safer substitutions and, in some extreme cases, ban them altogether.

SOMETHING SMELLS WRONG

One of the biggest concerns involves short-chain chlorinated paraffin's (SCCP's). These are commonly used to accelerate the vulcanizing process. REACH regulations clearly stipulate that SCCP's should either not be used at all or at least only used on a very restricted basis because of their category 2 carcinogenic classifications. Their presence can usually be identified by the unpleasant smell of the rubber whereas good quality rubber usually has very little smell at all.

The formation of nitrosamines gasses is another cause of concern and known to occur when certain types of vulcanisation accelerators are used. Nitrosamine gasses can release themselves from rubber belts, which could particularly be a problem when the belts are stored indoors. Nitrosamines are chemical compounds classified as probable human carcinogens on the basis of animal studies. Investigative research is still ongoing but publicly available information from the rubber industry (primarily from within



Good quality rubber usually has very little smell at all.

Germany and The Netherlands) indicates that nitrosamine formation can be avoided if the accelerators are replaced by others that do not contain nitrosatable substances.

ACCOUNTABILITY AND RESPONSIBILITY

Perhaps not surprisingly, nearly all European conveyor belt manufacturers have chosen to ignore REACH requirements, either completely or at least partially because of the impact on production costs. Raw materials, all of which are readily available on the open market, make up more than 70% of the cost of producing an industrial conveyor belt. Competition is fierce and largely driven by the selling price. As with all markets, unregulated (in this case non-REACH compliant) raw materials cost appreciably less than regulated materials. This creates an extremely significant selling price advantage for those willing to ignore the regulations.

Manufacturers located outside of EU member states and the UK are not, of course, subject to the regulations. Neither are they subject to EU regulation concerning Persistent Organic Pollutants (POPs). This provides them with an open door because they are free to use unregulated raw materials even though those same materials may be entirely prohibited or at least have strict usage limitations within the European community.

Although importing belts that use materials that are forbidden to be used in Europe is still legally permissible, it is worth noting that the European-based trading companies who import belts from outside of Europe are responsible for the application of REACH regulation. This effectively means that the actual manufacturers are free of responsibility and the consequences while the importers of their products are likely to be totally unaware of the risks that they are exposed to. It is not only traders who are exposing themselves to risk. At Dunlop we manufacture all of our belts (including the rubber) ourselves using our own facilities so we know for sure that we are fully REACH compliant. However, the vast majority of European manufacturers import at least part of their product range from outside of Europe to supplement their production and allow them to compete at the 'bargain basement' end of the market.

REACH AND THE UK FOLLOWING BREXIT

REACH, and other chemicals regulations, were retained in UK domestic legislation at the end of the Brexit transition period via the European Union (Withdrawal) Act 2018. Secondary legislation was also passed that amended REACH to make it work in a UK-only context from that point onwards. The UK Government put in place a separate UK REACH regime that applies to businesses



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that import, make, sell or distribute chemicals in Great Britain, whether as raw materials or in their finished state.

The UK REACH Regime was designed to establish a UK-wide market for chemicals applying to all chemical substances manufactured and imported into the UK, with the Health and Safety Executive (HSE) established as the UK REACH Competent Agency, taking over the functions of the ECHA. Under the Northern Ireland Protocol, however, the EU REACH Regulation will continue to apply to Northern Ireland after the end of the transition period, while UK REACH will regulate the access of substances to the market in Great Britain, as set out in the EU Exit Regulations of 2020. The UK REACH regime is designed to replicate the EU system as closely as possible, maintaining the fundamental aims and purposes of REACH including high standards of health and environmental protection.

PROGRESSIVELY TOUGHER

Anything to do with science is a process of continual evolution. Particularly since 2018, REACH regulation regarding SVHC (substances of very high concern) has become increasingly stringent and demanding. Previous REACH compliance was largely based on declaring (registering) the use of listed chemical substances and staying within specific limits applicable to each substance. Now, Article 31 of REACH (requirements for safety datasheets) demands that if a product contains SVHC that is more than 0.1% of the total weight of the finished product then the manufacturer is compelled to both register its use with the European Chemicals Agency and provide their customer with a safety datasheet.

Accurately calculating the total proportion of weight relating to SVHC for an individual product is quite a painstaking task. However, there is no doubt in my mind that it is entirely necessary. At Dunlop, we review and calculate the weight of SVHC in all of the materials that we use in each individual product. This includes materials that we buy from outside sources such as resin for example. The combined weight of SVHC is calculated as a proportion of the gross weight of the product. Not only do the proportions differ depending on the composition of each product type, they also differ depending on the thickness of the rubber covers. The proportion in terms of



The combined weight of SVHC should not exceed 0.1% of the actual product weight.



Wear a mask to avoid inhaling rubber dust.

weight is naturally higher in thinner, lighter products. As a responsible company, that is a fact that we simply have to accept. As I mentioned earlier, at Dunlop we manufacture our own rubber and we make every belt ourselves so we have total control. What worries me is that the majority of belt used in Europe nowadays is imported from outside of Europe, mostly from Asia, so it is virtually impossible to know how much SVHC and Persistent Organic Pollutants (POPs) these belts contain.

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 certainly is not my intention to scaremonger, it is nevertheless important that users of rubber conveyor belts make themselves aware of potential hazards. Always ask for written confirmation from the belt manufacturer or supplier that the product you 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, wear gloves (if practical) when handling belts. Secondly, it is advisable to wash your hands before drinking, eating or smoking. 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.



ABOUT THE AUTHOR

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