

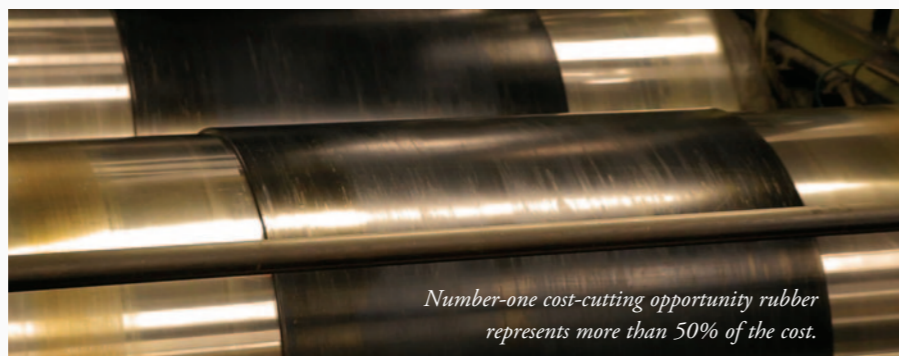
Reasons for being cheap

There can often be huge differences in the prices of what are supposedly the same specification of conveyor belt. In this first of a short but enlightening series of blogs, conveyor belt specialist Bob Nelson explains those differences.

CONVEYING ADVICE

PART ONE

When trying to establish the reasons for a huge difference in the price of one conveyor belt compared to another, the starting point must be the rubber compound because it forms some 70% of the volume mass and more than 50% of the cost. Consequently, it is the single biggest opportunity for manufacturers to cut costs and improve their price competitiveness.



One of the easiest methods is to reduce the rubber content is making the belt with covers that are thinner than specified — for example, a 3.7mm top cover that is claimed to be at least 4mm thick. It may not sound much and is very unlikely to be noticed but in reality it is 7.5% less rubber. That is a significant saving for the manufacturer and an immediate reduction in the wear life of the belt before it has even been fitted. When a new belt arrives on site it is therefore always a good idea to have a micrometer available to check for yourself.

Most conveyor belt rubber is synthetic. Dozens of different chemical components and substances are used to create the synthetic rubber compounds needed to cope with the different demands placed upon them. They can be very costly so a combination of using low-grade, unregulated chemicals at the absolute minimum levels or in some cases not using them at all, all contributes towards the manufacturer's 'lowest possible price' objective. A good example of these omissions are the antioxidants

needed to protect against the serious damage caused by ozone and ultraviolet light exposure. They are regarded by most manufacturers as an avoidable cost, which explains why some 90% of belts sold in Europe, Asia and Africa have virtually no ozone & UV protection. Again, a saving for the manufacturer and a significant cause of accelerated wear life. (For more information on the effects of ozone & UV on rubber belts, please see p38 of the August 2022 issue of *Dry Cargo International*.)

Despite the crucial role that it plays, yet another cost-cutting opportunity involving the rubber is carbon black polymer, which is a key component and makes up around 20% of a typical rubber



compound. For example, carbon black prolongs belt life by slowing the ageing process. It also acts as an important reinforcing compound. Good quality carbon black is costly so belts offered with significantly lower prices are virtually certain to contain low-grade carbon black which has most likely to have been made by burning scrap car tyres rather than the much more complex, scientific methods used to make carbon black of a good quality.

A clue to the use of poor grade carbon black can be a strong, pungent smell whereas good quality rubber should have little or no smell at all. Much more seriously, low-grade carbon black can contain carcinogenic chemical residues that are dangerous for people and the environment.

Other methods used to reduce the cost of the rubber include the use of low-grade (reject) recycled rubber of highly questionable origin and cheap 'bulking' fillers such as chalk, which are used to replace part of the rubber, despite the fact that (yet again!) they limit both the performance and the working life of the belt.

Last but not least are the cost-cutting tricks used when producing belts with more specialized rubber compounds such as oil

resistant, heat resistant and, even more seriously, fire resistant. The special chemicals and additives needed make such rubber compounds are even more complex and certainly more costly than straightforward abrasion resistant belts. Again, despite the importance of special properties, the temptation to minimize costs seems irresistible to the low-price merchants who resort to lower quality materials at the minimum possible levels. The consequence, of course, is oil-resistant belts that swell and distort faster; heat-resistant belts that age and delaminate faster and fire-resistant belts that do not self-extinguish as quickly as they could and should.



Shorter belt life does, of course, make it a 'win, win' situation for the less scrupulous manufacturer and those who supply and fit such belts while claiming to be much more economical than the so-called 'big brand' manufacturers and suppliers.

Bob Nelson

(NEXT TIME: How the use of unsafe, unregulated chemicals in rubber production cuts the cost but raises the risk to humans, wildlife and the environment.)