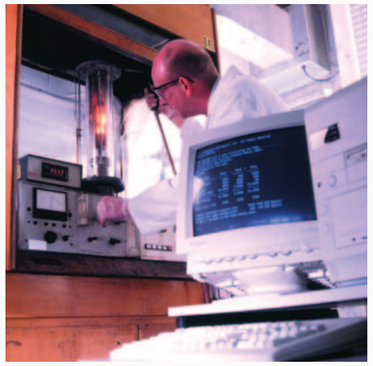
Testing the value

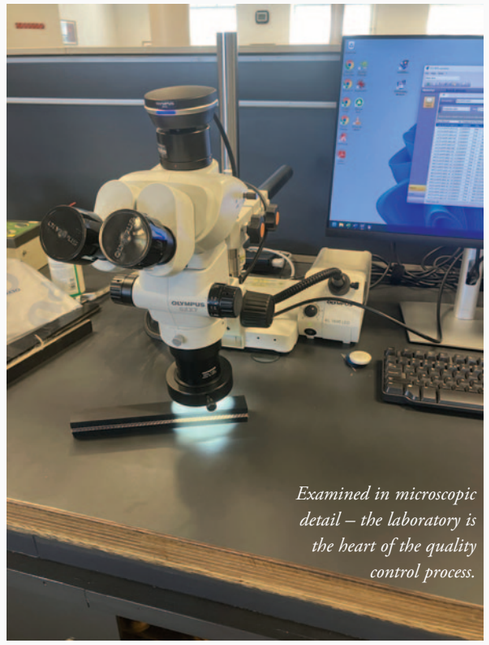
CONVEYING ADVICE

The Fenner Dunlop laboratory, situated in its Drachten plant in the Netherlands, lies at the very heart of everything that the company does, *writes Leslie David*. Having established a reputation for quality and innovation over the past 100 years, the laboratory plays a pivotal role in the quality control process and research & development. For example, every single batch of rubber compound has to be thoroughly tested and approved by the lab technicians before it is allowed to be used to produce conveyor belts. This is key to achieving consistency of quality and performance.



COMPARISON TESTING

Testing samples of belt made by its competitors is a routine part of the work carried out in the Fenner Dunlop lab. This kind of testing provides a factual, scientific insight that helps it keep ahead of it competitors. The company needs to know the strengths and advantages of its belts and how they compare to the competition. With cut-price imported belting from the Far East, primarily China, continuing to swamp the market, quality and value comparison is more important than ever. This is especially true in terms of whole life cost, those who believe that they are saving money are almost invariably paying a much higher price than they realize, as these brief summaries of recently tested imported belts confirm:



Examined in microscopic detail – the laboratory is the heart of the quality control process.

Far East import EP 800/4 7 + 2 DIN W Abrasion resistant: this belt was specified and supplied as a 630/4 but was actually an 800/4. Cover properties did NOT meet the claimed DIN W standard in terms of abrasion resistance, tensile strength and tear strength. DIN W is the highest standard for abrasion resistant belting but the tensile strength of the cover was actually below DIN Z, which is the lowest standard. The belt was NOT ozone resistant. The tested belt was significantly below Dunlop standards and not inadequate for purpose.

Far East import EP 1000/4 7 + 2 DIN W Abrasion resistant: this 1,000N/mm belt had an 800N/mm fabric carcass and consequently failed to meet its promised specification. The rubber covers were far below DIN W requirements and therefore failed to meet the claimed specification. The belt was NOT ozone resistant. The belt had clearly been supplied under false pretences and again unsuitable for the intended purpose.

Far East import 400/3 4+2 MOR Oil Resistant: the complete absence of resistance to oils and greases, full polyester carcass rather than the claimed polyester/nylon mix (EP) and an almost total absence of ozone resistance mean that this belt does not meet claimed expectations and was unfit for purpose.

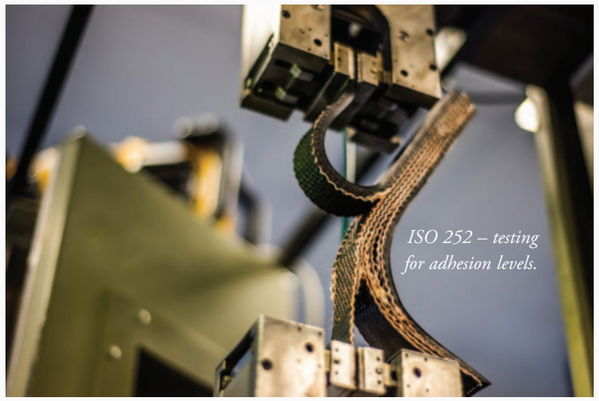
LEARNING THE HARD WAY — CASE STUDY

A company in Germany thought that they could save some money by buying an EP 630/4 4 + 2 DIN Y abrasion resistant belt from a 'local' manufacturer that was 'cheaper' than the Fenner Dunlop belt they had been offered. Unfortunately for them, they discovered the hard way that there was a good reason for the big price difference. When several different performance issues quickly became apparent, they sent a sample of the 'economy' belt for laboratory testing. Here is a summary of the test findings:

- **Belt properties:** testing revealed that the fabric plies of the belt carcass were entirely polyester (EE) rather than the claimed specification polyester/nylon mix (EP). The elongation was extremely low (0.62%), which causes serious compression in the carcass resulting in delamination between the fabric plies and carcass tears are likely to occur after only a limited time. Also, adhesion levels between the inner plies and between the carcass and the outer covers were below DIN/ISO minimum requirements. This is another serious cause of splice joint problems and also carcass delamination leading to the premature failure of the whole belt.

Testing exposes poor quality rubber that is not ozone or UV resistant.

- **Covers:** cover properties were exceptionally bad with almost non-existent abrasion resistance (325Mm³) and not complying at all with the cover grade specification promised to the customer. Tensile strength, tear strength and elongation at break were also totally inadequate, caused by using the minimum possible amount of polymers and using bulking fillers such as clay to reduce the cost of the rubber.
- **Ozone resistance:** the cover started to crack within only eight hours exposure of the total test time of 96 hours exposure static ozone resistance testing (EN ISO 1431/1 procedure B). This is a very poor performance and will result in premature cracking of the covers and loss of physical properties when the belt is in use.
- **Conclusion:** the supplier in this case was a well-recognized trading/service company that claims to sell good quality products. The belt in question was almost certainly imported from the Far East and apart from the colour, did not comply at all with what the customer should reasonably have expected.



ISO 252 – testing for adhesion levels.

Fenner Dunlop Conveyor Belting tests competitor samples on a very regular basis. The company never uses its findings to 'name and shame' competitors, but is sharing these results to show readers what is going on in the world. End-users are not able to test the products themselves and rely on the honesty of the supplier of the belts. As can be seen in the examples above, which form only a small fraction of the numerous similar examples that Fenner Dunlop has, the quality and value of what is being supplied frequently differs enormously from what should be expected.