

TECHNICAL INFORMATION BULLETIN

OIL RESISTANT BELTING

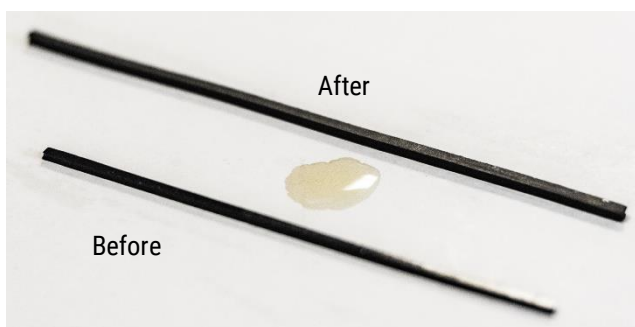


THE EFFECTS OF OIL ON RUBBER

Conveying materials and products that contain oil, fat or grease can have a very detrimental effect on the performance and life expectancy of a conveyor belt. When oil penetrates the rubber it causes it to swell and distort, resulting in serious tracking and steering problems as well as premature wear.

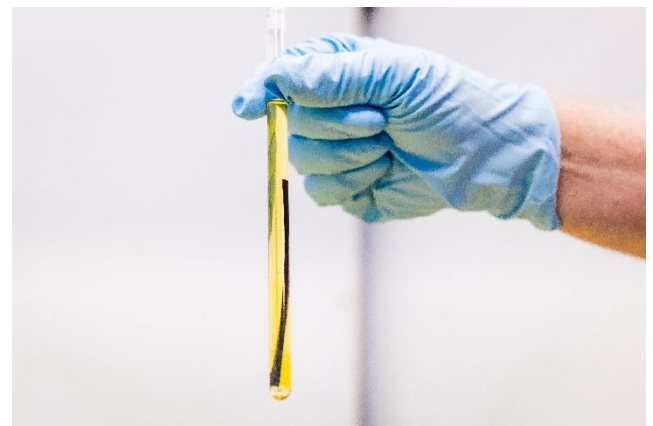
The oils and fats that have these damaging effects can be divided into two distinct sources – mineral and vegetable/animal. Mineral oil is usually a liquid by-product of refining crude oil to make gasoline and other petroleum products. It is composed mainly of alkanes and cycloalkanes, related to petroleum. High deposits of mineral oil can be found in household and industrial waste. There is a marked difference in the swelling caused by different mineral oils on compounds made of synthetic rubber.

The level of oil and resin present in wood depends very much on the type (origin) of the wood itself. Good resistance to oil is necessary for most wood from Scandinavia as these are mostly pine trees, which have high turpentine content. In South-European countries and in Latin America, Eucalyptus trees are commonly used.



The swelling effect of oil on rubber (close up to be done)

The wood from Eucalyptus trees contains little or no turpentine so oil resistance is not quite so essential. This is generally valid for other non-pine woods such as poplar and birch. However, if the origin of the wood being conveyed can originate from variable sources then we would always recommend using conveyor belts that are resistant to vegetable oil.



Testing for oil resistance in the Dunlop laboratory

OIL RESISTANCE TESTING

ISO or DIN international standards containing specifications for oil & grease resistance do not yet exist. In order to achieve the minimum of swelling and distortion caused by oil, even on the most demanding of applications, in Dunlop we apply stringent American ASTM 'D' 1460 standard test methods.

DUNLOP SOLUTIONS

Despite the different characteristics, most conveyor belt manufacturers only produce one oil resistant rubber cover quality compound. At Dunlop we have designed and engineered two compounds to provide the best possible protection against different types of oil.

Dunlop ROM is specifically designed to resist the penetration and damaging effects of vegetable and animal oils, fats and resins. In the case of highly aggressive mineral oils, our engineers have also developed the extremely successful **Dunlop ROS** cover quality. Some vegetable products have a similar detrimental effect to mineral oil. In these situations, and those that involve products with high concentrations of vegetable oil, we advise the use of the superior resistance provided by the ROS cover grade quality.

OIL AND WEAR RESISTANT

The chemical components used to create an oil resistant rubber compound usually have an adverse effect on its resistance to wear. At Dunlop our technicians have developed oil resistant rubber compounds that are also extremely resistant to abrasion. Buyers should always demand an average of less than 150mm³ supported by a technical datasheet that confirms the level of abrasion.

Covers that are resistant to both oil and fire are available to order from the Dunlop range.

BVM K/S Oil resistant (ROM) and fire retardant according to EN 12882 Class 2A (K) and Class 2B (S)

BV VT Oil resistant (ROM) and fire retardant up to EN 12882 Class 5A)

BV GT Oil (ROS), fire and heat resistant

OIL AND EXTREME COLD

Oil resistant belts are usually only able to withstand a minimum temperature of -20°C. For temperatures lower than -20°C, conveyors should be fitted with **Coldstar ROM** (-40 °C) or **Coldstar ROS** (-30 °C). These belts have been specifically engineered to operate in extreme cold conditions as well as providing outstanding resistance to oil and abrasion.



AGGRESSIVE CHEMICALS

Dunlop ROM and ROS oil resistant rubber compounds provide good resistance to the damaging effects of many chemicals including acids. Because of the enormous number of different chemicals it is best to ask for guidance from the manufacturer for specific chemicals that may be present in the materials being conveyed.

All Dunlop conveyor belts are ozone resistant (EN ISO 1431), REACH compliant (EC 1907/2006) and suitable for use in ATEX regulated zones.



Oil resistant belts in the recycling industry

SEEK ADVICE

As often as not, the quality of a belt (including its ability to resist oil) reflected in its price. It is always worth the effort to check the original manufacturer's specifications very carefully and ask for documented evidence of tested performance compared to the relevant international standard before placing your order.

WE ARE HERE TO HELP

For more information on this subject please contact your local Dunlop sales representative or Dunlop's Application Engineering team on +31 (0) 512 585 555.