

# Using low cost seals can be a long term false economy

June 26, 2013



DICHTOMATIK

Derby, United Kingdom

([rushPRnews](#)) 06/26/13 —

Production processes utilising hazardous chemicals such as acids and amines, very often at elevated temperatures of 150°C or more, occur in a wide range of manufacturing industries including oil and gas, chemical,

pharmaceutical and semiconductor. The combination of corrosive fluids and high temperatures can be particularly destructive for any sealing elements used in valves, pumps and other equipment forming part of a production process and associated pipework.

Interruptions to production processes through leaks and breakdowns resulting from seal failures can prove to be very costly, as well as having potential ramifications of causing environmental damage and jeopardising workforce safety.

The [DuPont™ Kalrez® Spectrum™ 6380 perfluoroelastomer sealing](#) parts are a non-black product specifically developed for chemical processes involving hot, aggressive amines. In addition, this product has an excellent overall chemical resistance and mechanical properties making it suitable for applications involving both static and dynamic sealing requirements. This cream coloured product is a prime choice for sealing operations with harsh aggressive chemicals, and it can withstand a maximum continuous service

temperature of 225 °C, with short-term excursions to higher temperatures also being permissible.

O-ring seals in this material are available from stock in a wide range of both British Standard Imperial and metric sizes from the [UK authorised distributor Dichtomatik Ltd](#). These Kalrez® products are unique to DuPont™ and are only available through recognised and authorised distributors. This ensures that the raw material and all the production and manufacturing processes involved are controlled by DuPont™ within their own facilities, giving them an extensive bank of knowledge and expertise of the chemistry and raw materials required to maintain product performance for a wide range of difficult and problematic sealing applications.

It is the combination of chemical and thermal resistance that sets the Kalrez® product apart from other elastomers, with the combination of ingredients also forming a unique chemical structure which ensures the chemical bond is virtually unbreakable. Where valves, pumps or other in-line products are being supplied by OEM's for difficult process applications, it is recommended that appropriate DuPont™ Kalrez® Spectrum™ 6380 O-ring seals are specified as original fitments to provide the maximum service reliability, performance, longevity and operating safety required.



A typical 12 months testing period between OEM supplied elastomer seals and FFKM Kalrez® perfluoroelastomer O-rings established that the latter increased the useful working life of equipment up to 7 times ie from 15 days up to 3.5 months. With the strip down and repair time for replacement of a seal being costed at 100€ per time, these repairs equated to 23,000€ pa for the original elastomer and only 3000€ pa for the Kalrez® product. The total annual cost for seal replacements (typically 70mm diameter x 2.5mm cross

section) was 2600€ for the original elastomer and only 800€ for the initially more expensive Kalrez® product. The total downtime costs associated with a seal replacement was estimated at 1000€, giving a total of 23000€ for lost production with the original elastomer and only 3000€ for the Kalrez® product.

Taking replacement seal costs plus installation and also downtime costs for 23 repairs annually for the original elastomer and only 3 repairs annually for the Kalrez® product, the latter showed an overall cost saving of 21,600€ per annum per seal utilised on the site. This is not taking into account the value of increased safety associated with reduced chemical exposure risks during seal replacement/repair operations where process fluids such as Ethylene Oxide or other potentially hazardous products are involved.

A detailed leaflet on the sealing performance of DuPont™ Kalrez® perfluoroelastomers is available on request from [Dichtomatik Ltd.](#)

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