

適用於石油與天然氣行業的特殊橡膠



石油與天然氣行業

在當今的石油和天然氣行業，密封件通常用於惡劣的工作環境，如石油探勘、開採、鑽井系統中，這些具有高壓、極端溫度、腐蝕性化學物質和氣體等嚴苛的應用環境，使得密封彈性體性能的要求越來越高。

而運用於關鍵流程的密封件，石油和天然氣行業也為密封材料建立了相關的測試標準，該市場中使用的化合物需要在現場使用前進行廣泛的測試和認證。



對彈性體要求

石油與天然氣行業通常要求材料能夠抵抗嚴苛環境，尤其是具備以下能力：

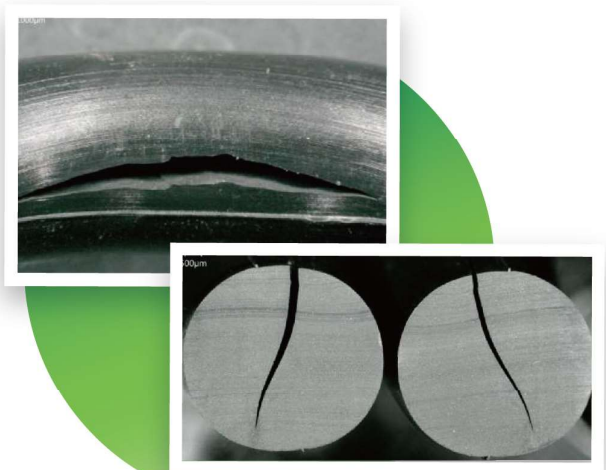
- 耐油性
- 耐腐蝕性能
- 抗振性
- 壓力下的穩定性
- 化學穩定性
- 耐高壓力與抗爆炸減壓
- 耐高、低溫性



快速氣體減壓(RGD)

高壓環境下，氣體會滲透進彈性體內部，而當彈性體所處的高壓環境的壓力迅速釋放減壓時，彈性體中的壓縮氣體試圖擴大並衝出彈性體，導致其破裂。這種現象被稱為快速氣體減壓(RGD)或爆炸性減壓(ED)。

RGD容易導致密封件產生現裂痕或不可見的內部損壞，進而使密封件失效，造成石油和天然氣行業設備停擺或損壞，因此抵抗RGD的能力為該行業的關鍵指標之一。



O型圈不耐RGD導致爆裂的圖例(側面及截面圖)



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in Compounding








長泓能為您做什麼？

長泓膠業提供一系列經過快速氣體減壓（RGD）驗證的各種材料，您可以根據需求決定和測試哪種材料最適合您的要求。

提供的材料包括HNBR, FKM, AFLAS等，並經過Element Hitchin第三方認證機構的獨立測試和通過 ISO 23936-2 規範認證。

下列圖表提供了各材料與環境條件的建議，需要更詳盡的資訊請與CHR聯繫。

	CHR-HN-002	CHR-AF-001	CHR-FK-003	CHR-FK-002	CHR-FK-004
Material	HNBR	AFLAS	FKM	FKM	FKM
Typical Cure system	peroxide	peroxide	bisphenol	peroxide	peroxide
Durometer	90	90	90	90	90
Chemical Resistance	Medium	Excellent	Medium	Excellent	Excellent
Steam	Medium	Excellent	Medium	Good	Good
Aromatic Hydrocarbons	Medium	Medium	Excellent	Excellent	Excellent
Amines	Excellent	Excellent	Medium	Medium	Medium
Oil	Excellent	Excellent	Excellent	Excellent	Excellent
Methanol	Good	Excellent	Medium	Medium	Medium
Sealing	Medium	Good	Excellent	Excellent	Excellent
Service Temperature	-30 to 150 °C	0 to 225 °C	-15 to 200 °C	-30 to 200 °C	-40 to 200 °C
ISO 23936-2*					

*RGD Testing Conditions: Gas:10% CO2+90% CH4,Pressure:15MPa, Temperature:100C

長泓膠業股份有限公司 CHANG HORING RUBBER CO., LTD.

長泓致力於各行業的混練膠配方設計並提供客戶優良的密封性能橡膠，符合各國法規上的各項要求，為客戶提供最有力的支持。

我們在每個地方都設有服務人員，隨時滿足及提供各種混練膠的開發，若是你有興趣歡迎和我們的人員進一步的聯絡：



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CHR Elastomers for Oil & Gas



Oil and Gas Industry

In the oil and gas industry nowadays, seals are commonly used in harsh environments such as oil exploration, exploitation and drilling systems. These severe application extremes of high pressure, extreme temperature, corrosive chemicals and gases become more demanding for the performance of the elastomer seals.

For the seals used in critical processes, the oil and gas industry establishes the testing standards for the sealing materials to require that the compounds used in this market shall be subject to extensive tests and certifications prior to use on the site.



Rapid Gas Decompression (RGD)

The gas permeates into the elastomer under high pressure. When the pressure is released and decompressed rapidly in the high-pressure environment where the elastomer is mounted, the pressure gas tries to expand and rush out of the elastomer, breaking it as a result. This is called Rapid Gas Decompression (RGD) or Explosive Decompression (ED).

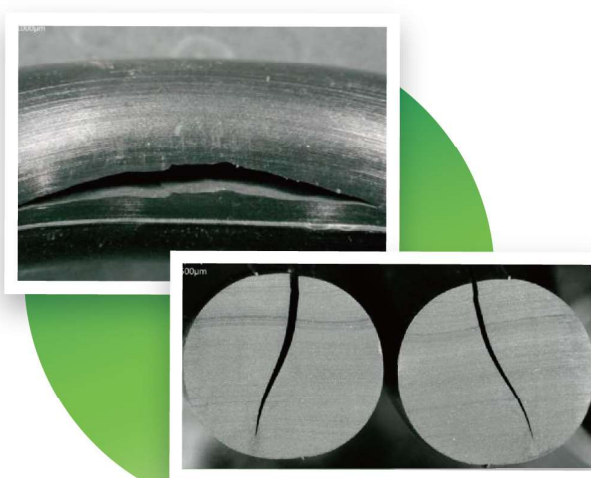
RGD can bring cracks or invisible internal damage to the seals easily. This leads to failure of the sealing effect and brings about downtime or damage to the equipment of the oil and gas industry. Hence, the ability to resist RGD is one of the key performance indicators of the industry.



Elastomer Requirements

The oil and gas industry usually requires the ability of the material to resist harsh environment, especially the following capabilities:

- Oil resistance
- Corrosion resistance
- Shock and vibration resistance
- Stability under pressure
- Chemical stability
- High pressure and ED resistance
- High/low temperature resistance



Example of O-ring that is not resistant to RGD and has exploded during RGD test (side and section views)



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CHR Elastomers for Oil & Gas



What CHR Can Do for You?

CHR provides a series of materials that have passed the RGD verification. You can select and test the materials that are most suitable to meet your requirements.

The materials that CHR provides include HNBR, FKM, and AFLAS. They have been tested by Element Hitchin as an independent third-party certification institution and passed the ISO 23936-2 standards.

The recommended materials and the corresponding environmental conditions are listed in the following table. If you need more information, please contact CHR.

	CHR-HN-002	CHR-AF-001	CHR-FK-003	CHR-FK-002	CHR-FK-004
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CHANG HORING RUBBER CO., LTD.

CHR is dedicated to the design of rubber compounds for different industries and offers customers quality rubber for sealing. Our products meet many legal requirements of the countries and provide the best support for customers.

We arrange service representatives at every business base to provide development services of rubber compounds and meet customer's requirements at any time. Please contact our service representatives if you are interested in our products:



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