



VARIBOX®

FAQ EPDM or Viton

Packaging chemicals can be safer!



varibox-ibc.com



info@varibox-ibc.com



VARIBOX IBC

A brand of **Berry**

FAQ EPDM or Viton seals

This FAQ contains frequently asked questions about EPDM and Viton seals that are used in the VARIBOX. This FAQ explains about seals used in the VARIBOX and their materials. It also helps to choose the correct material for your application. At the end you will find a general guidance table.

What are Seals?

What are EPDM and Viton seals?

You will find seals in the screw cap, combi vent, extractor tubes and level sensors. Seals ensure the leak tightness of closures, so chemicals and fumes stay inside. The VARIBOX can be equipped either with EPDM seals, or with Viton seals.

EPDM

What is EPDM?

EPDM is a material used for the seals (gaskets) in many VARIBOX components. EPDM is an elastomer and is short for Ethylene Propylene Diene Monomer, a type of synthetic rubber.

How resistant is EPDM?

EPDM has a good resistance to many chemical products like detergents, caustic potash solutions, sodium hydroxide solutions and many other diluted acids and chemicals. It is not resistant to most hydrocarbons, such as oils, kerosene, gasoline and many solvents. EPDM is resistant to steam and ozone.

Viton

What is Viton?

Viton is a material used for the seals (gaskets) in many VARIBOX components. Viton® is a registered trademark of The Chemours Company and is an FKM material. This is a fluoro elastomer, another type of synthetic rubber. When a VARIBOX is equipped with Viton, the seals in the CDS extractor tube will be made of Aflas®. This is TFE/P, another fluoro elastomer, from the Asahi Glass Ltd.

How resistant is Viton?

Unlike EPDM, Viton has a good resistance to oils, fuels, lubricants, and most mineral acids. It is resistant to most chemicals, but not to for example Acetic acid, Ammonia, Caustic soda, Formic acid and Potassium hydroxide.

Which material is better?

Is Viton better than EPDM?

This question cannot be answered in general: in many cases both materials will be resistant to the chemical product in the VARIBOX. But some chemicals are not compatible with EPDM, and Viton is the better choice. And some chemicals are not compatible with Viton and EPDM is the better choice.

How do I choose the correct sealing material?

A general guidance on regularly filled chemical products is listed in the table below. Check the resistance of these seals against the product that you want to fill into the VARIBOX. Some chemical products are causing strong deterioration of EPDM as well as Viton, like Hydrofluoric acid and Nitric acid in high concentrations. With these chemicals we advise you to choose Viton as it outperforms EPDM. Regularly inspect the quality of the seals. Especially at elevated temperatures the seals may deteriorate quickly and need to be replaced.

General guidance table EPDM or Viton

Product	Conc.	Formula	UN number(s)	Gasket material
Acetic acid	All	CH ₃ COOH	UN 2789; UN 2790	EPDM
Ammonia	<20%	NH ₃	UN 2672	EPDM
Citric acid	All	C ₆ H ₈ O ₇	UN 3265	EPDM
Hydrochloric acid	All	HCl	UN 1789	Viton
Hydrofluoric acid	≤60%	HF	UN 1790	Viton
Hydrogen peroxide	≤60%	H ₂ O ₂	UN 2014*; UN 2984*	Viton
Nitric acid	≤55%	HNO ₃	UN 2031	Viton
Nitric acid	55-62%	HNO ₃	UN 2031	Viton
Peroxyacetic acid	≤5%	C ₂ H ₄ O ₃	UN 3149*	Viton
Peroxyacetic acid	5-15%	C ₂ H ₄ O ₃	UN 3109*	Viton
Phosphoric acid	All	H ₃ PO ₄	UN 1805	EPDM
Potassium hydroxide	All	KOH	UN 1814	EPDM
Sodium chlorite	All	NaClO ₂	UN 1908	EPDM
Sodium hydroxide	All	NaOH	UN 1824	EPDM
Sodium hypochlorite	All	NaOCl	UN 1791*	Viton
Sulfuric acid	All	H ₂ SO ₄	UN 1830	Viton
*: overpressure relief vent is required or advised				

Learning More, Service and Support

More information about using the VARIBOX FC

For the latest information about the VARIBOX FC and for service and support, please visit www.varibox-ibc.com. You will also find instructional videos about using the VARIBOX FC. A quick way to access the website is to scan the QR code below. This code is also present at the VARIBOX FC.



Getting in touch with us

For spare parts you can use the VARIBOX FC Service parts lists with all the correct references. To obtain this list, or for warranty related questions or for more information about this or more VARIBOX products, feel free to contact us:

VARIBOX Customer Service
Tel.: +31 (0)570 660711
info@varibox-ibc.com

Obtaining warranty service

If the product appears to be damaged or does not function properly, please follow the advice in this booklet and the online resources.

If the product still does not function, contact VARIBOX Customer Service for instructions how to obtain warranty service.