

WRAS Approved EPDM Material



The importance of WRAS and BS 6920 drinking water materials

Harltex understands that UK water regulations and bylaws stipulate water fittings must be of an acceptable quality, not causing waste, misuse, undue consumption, or contamination to the water supply.

When Non-metallic materials, contact water for human consumption, they must comply to British Standard 6920 (BS 6920) used to evaluate non-metallic products and measured characteristics of water that has been in contact with the product.

The Water Regulations Approval Scheme (WRAS) is an independent approval body for plumbing products and materials. This accreditation from WRAS demonstrates a material is of a suitable quality and has been tested to demonstrate compliance with the BS 6920 standard.

The following processes are part of BS 6920 testing, in which our EPDM was assessed:

- Odour and flavour test
- Colour and turbidity, or appearance of water test
- Growth of aquatic microorganism's test
- Extraction of substances that may be of concern to public health (EXS), or cytotoxicity (Cyto) test
- Extraction of metals test

Applications - Gaskets, Seals, O-Rings

Applications requiring these standards are usually **water systems, pipes, commercial or residential water systems** and even **home appliances**.

Known for its durability, excellent resistance to weathering and ozone, and good chemical resistance. It's commonly used for sealing, gaskets, and other applications where contact with drinking water is necessary.

- Washers: EPDM washers can be used to seal joints and prevent leaks in water systems.
- O-rings: EPDM O-rings can provide a tight seal in various water applications.

WRAS Approval Number: 250455035 - Valid to Apr 2030

ISO9001-2015 Certification No. 442333



'EPW50, EPW55, EPW60, EPW65, EPW70, EPW75 & EPW80'. Black coloured, injection moulded EPDM material. Shore hardness between 50 & 80. Tested in-radius 2.95mm. For use with water up to 65°C.

Section: 5365 Rubbers

Section Subtitle: Ethylene Propylene Diene Monomer (EPDM) - material only.

Technical Data Sheet

Specification: EPW70 - EN681-70

Colour:  Black

Description:

Premium **Black EPDM rubber compound** with a nominal hardness of **70 Hard** certified by **WRAS** (Water Regulations Approval Scheme) for use in contact with **potable water up to 65°C**. This formulation has undergone rigorous testing to ensure compliance with BS 6920, demonstrating that it does not adversely affect the taste, odour, appearance, or quality of drinking water, nor does it promote microbial growth or leach harmful substances.

Unique Properties:

Material: EPDM (Ethylene Propylene Diene Monomer)

WRAS Approval: Certified to BS 6920 for use with potable water up to 65°C

Recommended Temperature Range: -40°C to +90°C (continuous service); WRAS approval valid up to 65°C

Features:

- Does not impart taste, odour, or colour to water
- Low extractables, suitable for long-term water contact
- Outstanding ozone and weather resistance
- Prevents Microbial Growth
- Engineered for use in potable water systems

Typical Applications: Gaskets, seals, O-Rings

Industry Standards: Specifically designed to meet EN681-1 WA/WC, BS6920.

Harltex can support certification to any international potable water standard. Please contact our sales team for further information.

Product Life Assessment – Sealing Gasket Design Life

To help determine lifecycle of a product made from this compound, stress relaxation measurements were conducted on EPW-70 at 23°C & 60°C (cold & and warm water) following the procedure set in ISO 3384-1.

After recording the newton force readings and calculating the percentage sealing force loss at multiple points over 100 days a logarithmic decay equation was calculated. Using this equation the rate of which the sealing force decayed was extrapolated to 100 years.

Test results show that products made out EPW-70 if fully cured meet the requirements set out in EN681-1 WA/WC. The extrapolation from this data also shows that after 100 years products made from this material will have over 60% of its original sealing force.

This is the case at cold and warm water conditions (23°C & 60°C)

PROPERTY	Test Method	Limits	Results
Hardness (IRHD)	ISO 48	65-75	68
Tensile - Strength	ISO 37	9 MPa min	9.85
Elongation	ISO 37	200% min	409.2
Compression set testing			
24 hours at 70°C	ISO 815	20% max	17.09
72 hours at 23°C	ISO 815	15% max	14.29
72 hours at -10°C	ISO 815	50% max	34.52
Ageing tests – 7 days at 70°C as per ISO 188			
Hardness change	ISO 48	+8/-5 max	+1.5
Tensile strength change	ISO 37	-20% max	-6.1
Elongation change	ISO 37	+10/-30 max	-5.0
Volume change in water	ISO 1817	+8/-1% max	+4.59
Stress relaxation testing			
7 days at 23°C	ISO 3384	16	11.35
100 days at 23°C	ISO 3384	23	16.22
Ozone Testing – after 72 hours pretension			
50pphm @ 40oC @ 48 hours @ 20% elongation	ISO 1431	No cracks	Pass

Results summary:

Test	Result
Odour and flavour of water BS 6920: Part 1: 2014, Clause 4 - 23°C	Pass
Odour and flavour of water BS 6920: Part 1: 2014, Clause 4 - 65°C	Pass
Appearance of Water BS 6920: Part 1: 2014, Clause 5	Pass
Growth of Microorganisms BS 6920: Part 1: 2014, Clause 6	Pass
Extraction of substances that may be of concern to public health BS 6920: Part 1: 2014, Clause 7 - 23°C	Pass
Extraction of substances that may be of concern to public health BS 6920: Part 1: 2014, Clause 7 - 65°C	Pass
Extraction of Metals BS 6920: Part 1: 2014, Clause 8 - 65°C	Pass

Harltex Datasheet Disclaimer: All recommendations and information contained in this specification sheet are to the best of our knowledge correct. Since conditions of service are beyond our control, users must satisfy themselves that the products are suitable for intended use. No warranty is given or implied in respect of information or recommendations or that any use of products will infringe rights belonging to other parties. In any event or occurrence our liability is limited to the invoice value of our goods delivered to you. We reserve the right to change product design and properties without notice.