

# fumion® VM\_E-600(K)

## General

*Polymer type:* The fumion® E is a solid polymeric ionomer composed from sulfonated polyether-etherketon (PEEK). The fumion E features high chemical durability and high ionic conductance of cations for use in numerous electrochemical applications. The polymeric ionomer fumion E is supplied SO<sub>3</sub>K-form.

The solid polymeric ionomer is supplied typically in form of thin fibers. The solid ionomer is identified by polymer type and identification number (Lot.-Number). Please refer to this type and identification number in case of queries.

The abbreviation VM in prefix stays for experimental samples (from German language VM = Versuchsmaterial), Properties of such materials are subject to ongoing adjustment.

## Handling

Avoid any direct contact with skin or eyes; prevent the inhaling of polymer dust. It is strongly recommended to put on a respiration mask before handling. Be sure the container with material is open at place under control of proper ventilation.

## Preparation of liquid solution

The solution preparation can be completed in common solvents such as DMAc or NMP at common conditions. Alternatively, the solution can be produced by using mixture of water with various alcohols or ketons or mixture thereof. The preparation of solution can be done in such case in pressurized reactor, if necessary. As additional option, the fumion solid can be converted to H<sup>+</sup> form first. In this case the fumion solids must be protected from hydrolysis at subsequent utilization, such as too high temperature during solution preparation.

The typical concentration of ionomer solution in DMAc or NMP is below 15% w/w. The typical concentration of ionomer in other solvents is below 10% w/w. The ionomer solution should be filtered before using.

**Important remark:** The user is responsible for choosing the solvent in accordance with the regulation and safety measures governing in the region of utilization of said fumion polymer. The user is responsible for keeping all safety measures during solution preparation. Fumatech BWT GmbH as supplier of solid ionomer bears no liability for any damages caused by fabrication of ionomer solution or by using of such solution.

If you have any concerns about storage, chemical stability, and pre-treatment please feel free to contact us for further information.

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## Technical Data Sheet - fumion® VM\_E-600(K)

### Physical and chemical data of fumion® VM\_E-600(K)

fumion®	unit	VM_E-600(K)
chemical name of the material		Sulfonated polyether-ether-ke-ton
chemical structure		(C17O3H10)x(SO3K)y; x:y = 1,6-2,2
polymer type		cation exchange
counter ion		K <sup>+</sup> -form
appearance		white fibers
delivery form		dry
content of moisture	%	< 5
ion exchange capacity	meq g <sup>-1</sup>	1,6-1,75
Molecular weight Mw	g.mol <sup>-1</sup>	> 100.000
decomposition temperature	°C	> 250
Version <sup>a)</sup>	1.0	Valid from May 5 <sup>th</sup> 2022

a) Changes without prior notices may apply.

Note: Product is not certified for drinking water applications. The data are not measured directly on the item supplied. The data sheet does not release the customer of the necessity of a goods inwards control procedure. All information included in this data sheet is based on tests and data believed to be reliable. The data do not imply any warranty or performance guarantee. It is the user's responsibility to examine performance, suitability and durability of the product for the intended purpose. FUMATECH BWT GmbH does not assume any liability for patent infringement resulting from the use of this product. Fumion® is a trademark of company FUMATECH BWT GmbH.

Hereby, it is certified that all results of the measured item comply with the margins of the internal specification defined in the technical datasheet. All measurements and data recording are conducted in accordance with standardized procedures following the ISO 9001 certification.