

Makrofol® FR344 2-4 060035

Description and Application Information

Makrofol® FR344 2-4 060035 is a transparent flame-retardant film based on polycarbonate from Covestro. It is noted, in particular, for its favorable mechanical properties as well as its excellent thermoforming behaviour. It is classified as “halogen-free” under the terms of DIN/VDE 0472 Part 815.

Makrofol® FR344 2-4 060035 is available in standard thicknesses of 250, 410 and 500 microns.

Surface structure is very fine matte - fine matte (2-4-surface).

Other thicknesses and surface structures are available on request.

Preliminary guide data

General properties			
Property	Value	Unit of measurement	Method
Density	1,3	g/cm ³	ISO 1183, 20°C, Method C
Thickness	250, 410, 500	µm	acc. to ISO 4593, 23°C
Roughness R3z		µm	acc. to ISO 4288, Lm12,5mm, lc 2,5mm, average of 5 measurements
2-surface	≤ 5		
4-surface	≤ 11		
Shrinkage ≥250µm 1h, 80°C, shrinkage on talcum	≤ 0,3	%	acc. to IEC 60674-2
Transmittance	≥ 80	%	ASTM D 1003
Electrical properties			
Property	Value	Unit of measurement	Method
Surface resistivity	≥ 10 ¹⁶	Ohm	IEC 60093
Volume resistivity	≥ 10 ¹⁶	Ohm*cm	IEC 60093
Thermal properties			
Property	Value	Unit of measurement	Method
DSC 20K/min	≥ 95	degree C	DIN EN ISO/IEC 17025
Burning behavior			
Property	Value	Unit of measurement	Method
Burning rate (UL)			
250 µm	VTM-0	Class	UL94 VTM
410, 500 µm	V-2	Class	UL94 V

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Labeling and REACH applications

This product data sheet is only valid in conjunction with the latest edition of the corresponding Safety Data Sheet.

Any updating of safety-relevant information – in accordance with statutory requirements – will only be reflected in the Safety Data Sheet, copies of which will be revised and distributed. Information relating to the current classification and labeling, applications and processing methods and further data relevant to safety can be found in the currently valid Safety Data Sheet.

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance, information and recommendations to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by Covestro. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent.

This product is not designated for the manufacture of a medical device (1) or of intermediate products for medical devices. This product is also not designated for Food Contact (2), including drinking water, or cosmetic applications. If the intended use of the product is for the manufacture of a medical device or of intermediate products for medical devices, for Food Contact products or cosmetic applications Covestro must be contacted in advance to provide its agreement to sell such product for such purpose. Nonetheless, any determination as to whether a product is appropriate for use in a medical device or intermediate products for medical devices, for Food Contact products or cosmetic applications must be made solely by the purchaser of the product without relying upon any representations by Covestro.

(1) Please see the "Guidance on Use of Covestro Products in a Medical Application" document.

(2) As defined in Commission Regulation (EU) 1935/2004.

This is a trial product. Further information, including amended or supplementary data on hazards associated with its use, may be compiled in the future. For this reason no assurances are given as to type conformity, processability, long-term performance characteristics or other production or application parameters. Therefore, the purchaser/user uses the product entirely at his own risk without having been given any warranty or guarantee and agrees that the supplier shall not be liable for any damage, of whatever nature, arising out of such use. Commercialisation and continued supply of this material are not assured. Its supply may be discontinued at any time.

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