

kuraray



®Mowital and Pioloform®
Multi-talented thermoplastics

®Mowital and Pioloform® – individualist with universal character

®Mowital and Pioloform® are the trademarks for a wide range of different polyvinyl butyrals (PVB) marketed by Kuraray Europe GmbH (KEG). Both materials have excellent adhesion and film-forming properties, high binding power and outstanding optical transparency. They are soluble in many organic solvents and can be combined with a wide range of reaction partners.

Thanks to its excellent thermoplastic properties, Mowital can be used in standard plastics procedures such as extrusion and injection moulding. It is also an essential constituent of

lightfast, highly transparent, elastic and tearproof films.

When pressed between two panes of glass, it creates fracture-resistant and shatterproof laminated safety glass used mainly in the building and automobile industries

The numbers used in the type designation for Mowital (16, 20, 30, 45, 60 and 75) are relative measures the increasing degree of polymerisation or molar mass. The alphabetical suffix indicates the increasing degree of acetalisation, ranging from the T grades to the M and H up to the HH types.





The [®]Mowital and Pioloform[®] product portfolio

Degree of acetalisation

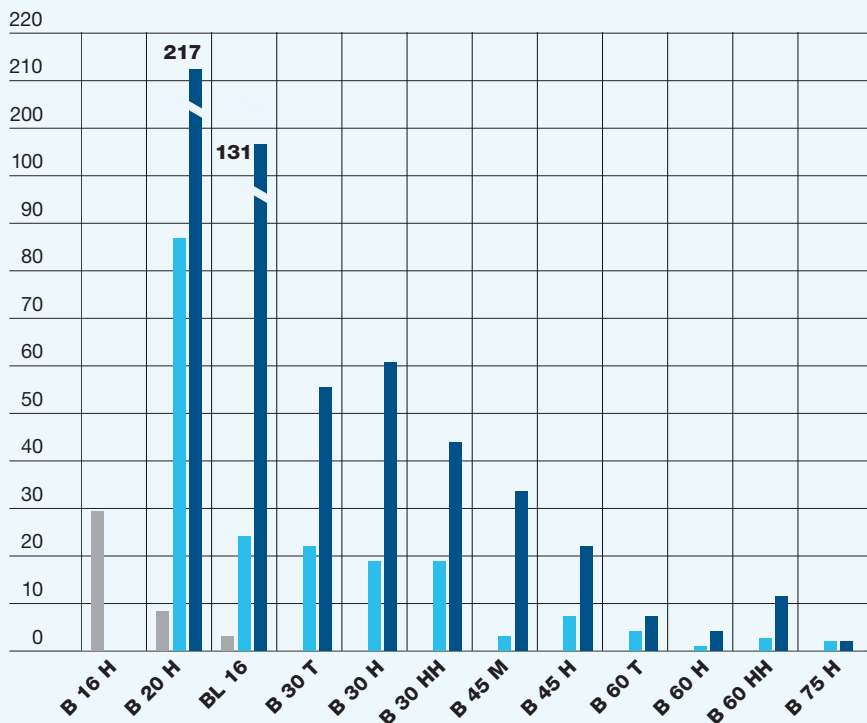
high			B 30 HH		B 60 HH	
medium		BL 16				
	B 16 H	B 20 H	B 30 H	B 45 H	B 60 H	B 75 H
low				B 45 M		
			B 30 T		B 60 T	

Molar mass/Degree of polymerisation

Melt flow index

[g/10 min], 2.16 kg

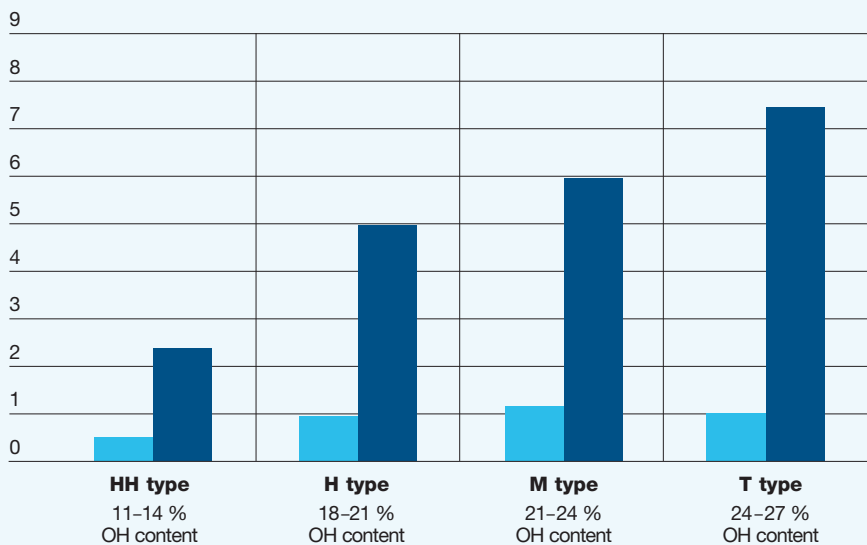
■ 150°C ■ 190°C ■ 230°C



Water absorption

■ at 23°C/50% r.H.

■ at 23°C/98% r.H.



®Mowital and Pioloform® – variable properties, multiple applications

Since the polymer properties can be exactly controlled, Mowital types meet the requirements a wide range of industrial applications. The degrees of polymerisation and acetalisation determine the basic properties as well as combinatorial and reactivity qualities of polyvinyl butyral.

Mowital is colourless, transparent and light-fast. The glass transition temperature of the Mowital types decreases with increasing content of the acetal groups and decreasing degree of polymerisation. Values between 60°C and 73°C are measured for the individual types. The mixed acetal type BL 16 achieves even 84°C.

The melting range starts with the low-viscous types at about 130°C and ends with the high-viscous types at approximately 220°C.

Thanks to their low melting temperature and excellent flow qualities, Mowital and Pioloform types are easy to use in, for example, moulding processes at temperatures ranging from 130°C to 280°C.

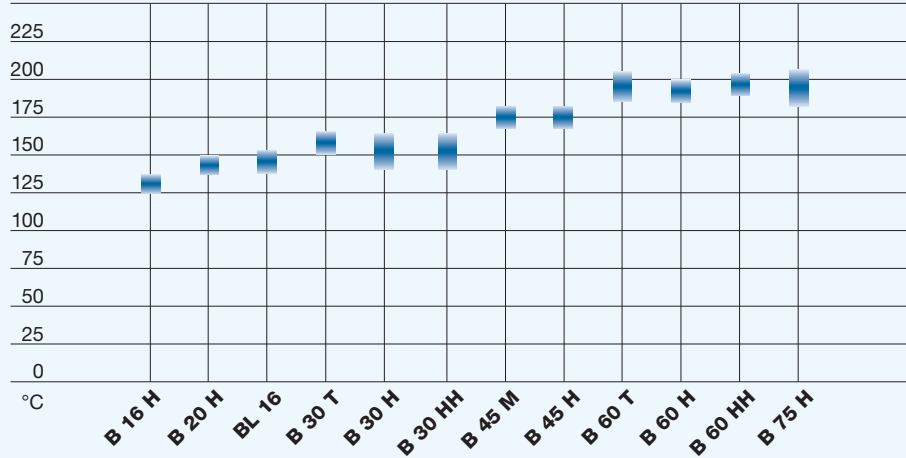
In contrast to many standard plastics, Mowital and Pioloform have a high water absorption capacity which makes it possible to specifically control the amount of water taken up or given off (see chart “Water absorption”).

®Mowital and Pioloform® – types for thermoplastic processing

All Mowital and Pioloform types are well-suited for use in modern thermoplastic production processes: Their basic properties as well as their ability to combine and react with other plastics can be specifically controlled via the synthesis. Mowital and Pioloform also have excellent melting behaviour and outstanding flow properties and can be used both in injection moulding and standard extrusion procedures. Moreover, Mowital complies to most of the common regulations for food packaging.

Mowital and Pioloform are ideal both as a binding agent as well as dispersant that can be used in varnishes and inks. Their high binding properties with pigments and soluble paints predestine them for successful use in masterbatches. Since Mowital and Pioloform are compatible with various plastics, such as PMMA, PA6, PVC or TPU, they are especially valuable for applications in masterbatches.

Softening range (ring and ball method, DIN EN ISO 4625)



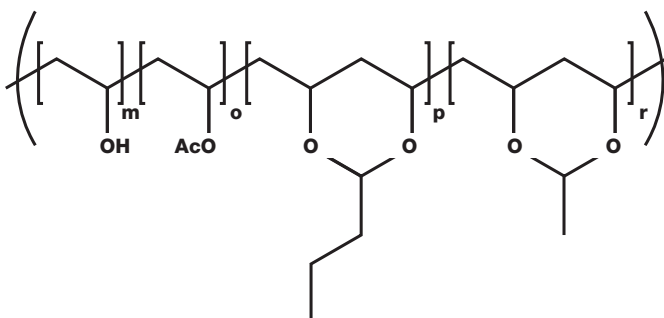
®Mowital type	Charpy impact test according to DIN EN ISO 179		Vicat B according to DIN EN ISO 306 (°C)	Shore D according to DIN 53505
	not notched (kJ/m ²)	notched (kJ/m ²)		
B 20 H	10.4	0.5	62	84
BL 16	5.9	0.7	84	765
B 30 H	16.7	1.3	66	85
B 60 H	98.2*	3.9	63	84
B 75 H	>100*	3.2	69	79

* no break

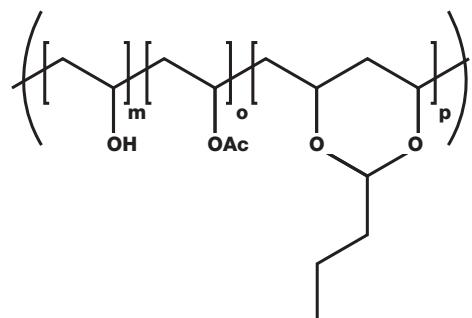
Tensile test
according to DIN EN ISO 527

®Mowital type	Elastic modulus (N/mm ²)	Yield stress (N/mm ²)	Elongation (%)	Breaking stress (N/mm ²)	Elongation at break (%)
B 20 H	2519	38.8	1.7	38.7	1.7
BL 16	330	14.7	0.36	4.55	0.43
B 30 H	2523	58.0	3.8	34.8	57.9
B 60 H	2366	56.2	3.9	35.8	32.5
B 75 H	2655	55.2	4.0	40.0	9.6

Polymer structure of Pioloform®



Polymer structure of ®Mowital



Kuraray – world leader in polymer chemistry

Kuraray is the leading supplier of polyvinyl alcohol (Mowiol and Kuraray Poval), its films and fibres (Kuralon), polyvinyl butyral (Mowital and Pioloform) and its films (Trosifol) for the global market. Kuraray also manufactures a variety of special polymers like ethylene vinyl alcohol copolymers (Exceval & EVAL) and thermoplastic elastomers (Septon & Hybrar). In addition, based on the polymer technologies, the company also supplies dental products, fibres, textiles and synthetic leathers. Employing more than 7,000 people, the Kuraray Group achieves annual sales of about four billion dollars.

Kuraray Europe GmbH (KEG) is a 100 percent subsidiary of the Japanese Kuraray Co. Ltd. in Tokyo. KEG is based in Frankfurt am Main and employs almost 600 people. The company achieves annual sales of almost four hundred million euros. At its production site in the industrial park in Frankfurt-Höchst it produces nearly 74,000 tons of polyvinyl alcohol and almost 40,000 tons of polyvinyl butyral per year.

Frankfurt-Höchst
Industrial Park, production
and administrative
headquarters of Kuraray
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