

kuraray

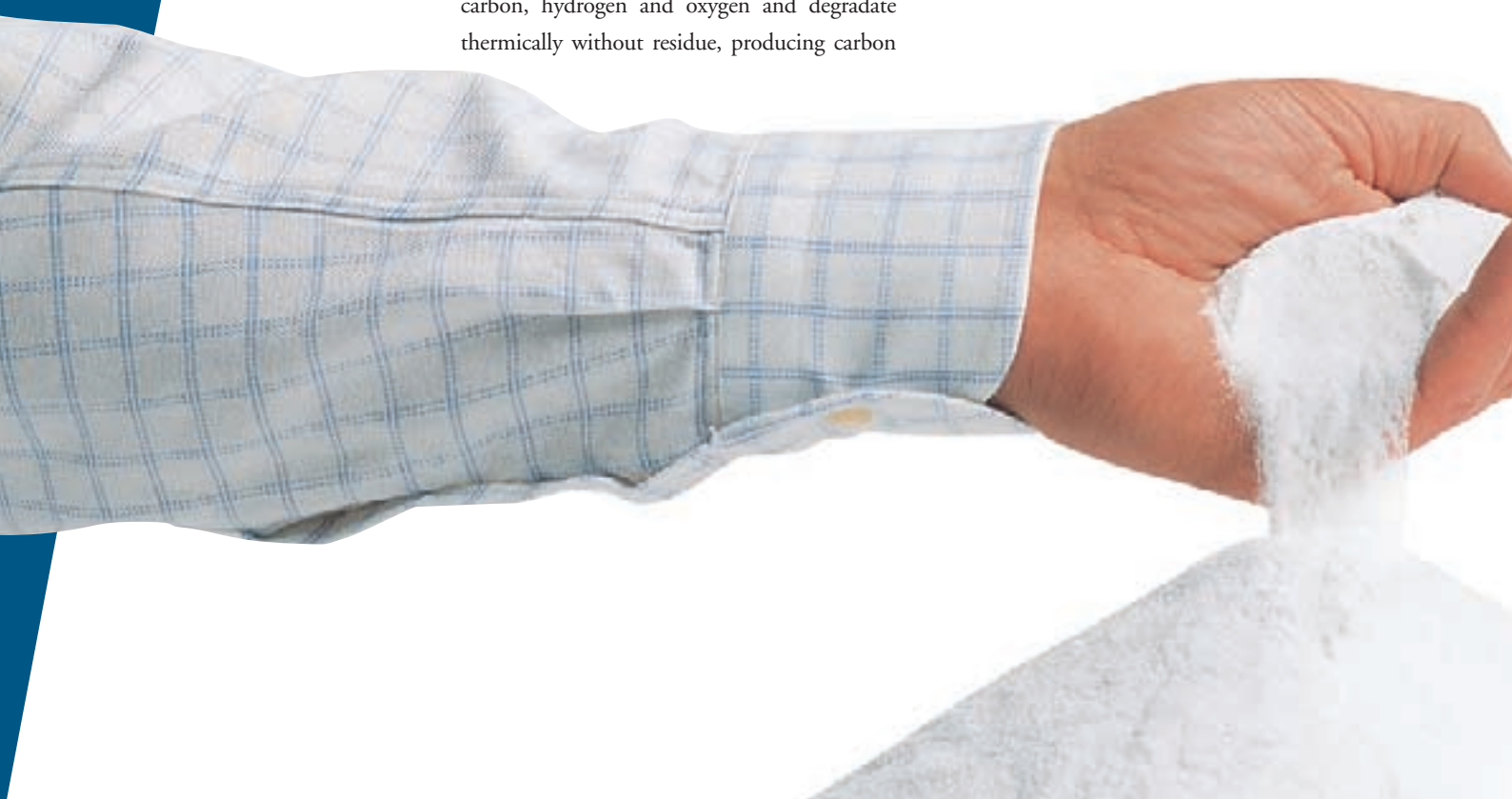


®Mowital and Pioloform®
Materials for the best connections

®Mowital and Pioloform® – meeting your most demanding needs

®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. Processing into highly elastic, transparent, tough films for laminated safety glass and use as a binder in printing inks, coatings and corrosion-protection primers are their major applications. Mowital and Pioloform consist of carbon, hydrogen and oxygen and degrade thermally without residue, producing carbon

dioxide and water. With backward integration of production Kuraray uses its own polyvinyl alcohol as starting material. This allows complete quality control of the starting polymers and thus ensures a consistently high quality level. Mowital and Pioloform are supplied as a fine-grain, free-flowing powder in paper valve bags or, on request, in big bags. Since KEG constantly optimises the existing applications of Mowital and develops new ones, Kuraray places particular value on technical services and close cooperation with its customers.



The table gives an overview of the wide range of Mowital and Pioloform applications. Properties and applications depend mainly on the degree of acetalisation and the viscosity of a Mowital or Pioloform grade. The numerical suffix of the

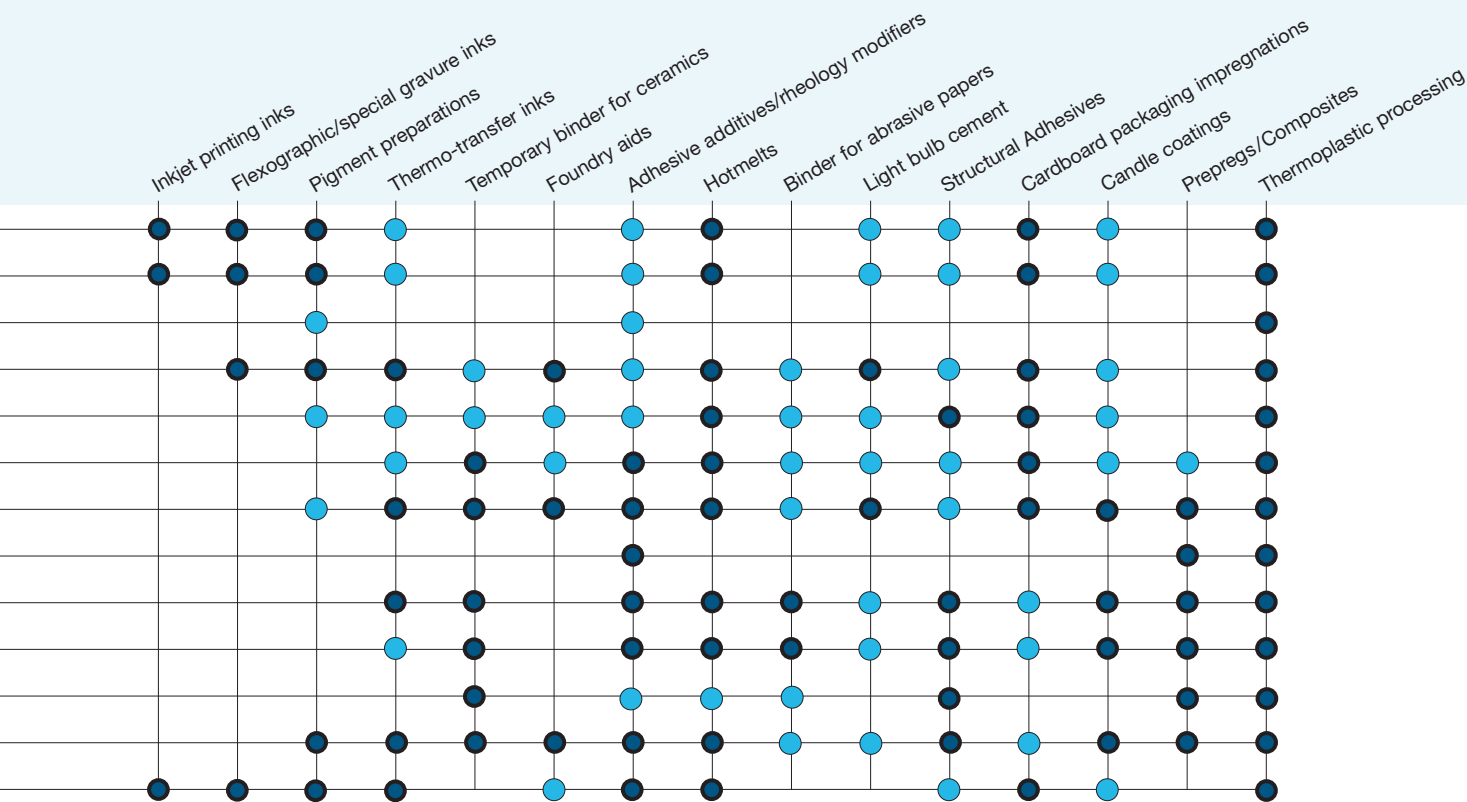
grade designation (16, 20, 30, 45, 60 and 75) indicates the increasing degree of polymerisation (and thus the increasing viscosity). The designations T, M, H and HH indicate different degrees of acetalisation.

	Strippable packaging coatings	Automotive refinishing coatings	Can coating/stoving coatings	Electrostatic spray primers	Corrosion protection/enamels/film lacquers	Heat-sealable lacquers	Radiator primers/wash primers	Wood sealing varnishes	Plastic surface finishes	Gear paints/nitrocellulose lacquers	Road marking paints	Additive for powder coatings	Coil coatings	Zinc-rich primers
Mowital B 16 H	●	●	●		●	●	●	●	●	●	●	●	●	●
Mowital B 20 H	●	●	●		●	●	●	●	●	●	●	●	●	●
Mowital B 30 T			●			●					●	●		
Mowital B 30 H	●	●	●		●	●	●	●	●	●	●	●	●	●
Mowital B 30 HH	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mowital B 45 M			●			●		●	●		●	●		
Mowital B 45 H		●	●		●	●	●	●	●	●	●	●	●	●
Mowital B 60 T			●			●				●	●	●		
Mowital B 60 H		●	●		●	●	●	●	●	●	●	●	●	●
Mowital B 60 HH		●	●	●	●	●	●	●	●	●	●	●	●	●
Mowital B 75 H			●			●								
Mowital BX 860		●	●		●	●	●	●	●	●	●	●	●	●
Pioloform BL 16	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Polyvinyl butyral – individualist with universal characteristics

Polyvinyl butyrals meet the requirements for an enormous number of applications. Mowital for instance is an essential component of **prepregs** and **composite materials**, adding flexibility to the phenolic matrix resin, e.g. for the production of aerospace interior. The use of Mowital and Pioloform in structural adhesives enables thermo-plasticity, improved flexibility and good adhesion to





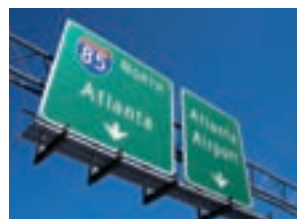
● Main application area
● Possible application area

various substrates. The automotive industry also employs both materials. Their lasting binding power make them suitable as a basis for stoving enamels.

As a component of **corrosion-protection primers** Mowital and Pioloform not only prevent steel from rusting but also provide excellent surface adhesion. The superior flow and pigment wetting

properties of Mowital and Pioloform make this product class highly suitable for the manufacture of predispersed pigment preparations and **printing inks** for e.g. food packagings.

Furthermore, Mowital and Pioloform permit the special build-up of **retroreflective coatings** in road traffic signs and markings – and thus increase road traffic safety.

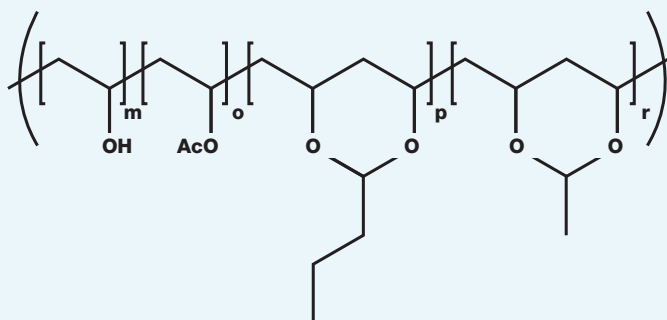


Thermoplastic – with outstanding versatility

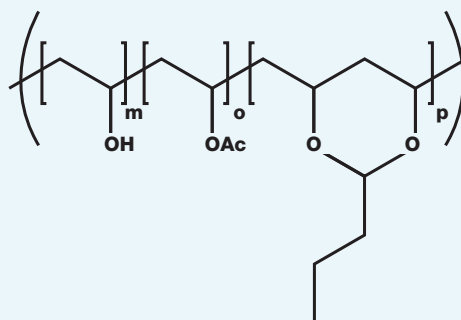
Mowital and Pioloform are thermoplastic polymers with an unusually wide range of properties, e.g. their excellent adhesion to a wide variety of surfaces such as glass or metal. The degree of acetalisation of the Mowital and Pioloform grades determines their **water resistance**, **solubility in organic solvents** and their **compatibility** with other formulation components – for instance plasticisers and other resins. Mowital and Pioloform can enter into crosslinking reactions with resins such as epoxides and phenolics. The crosslinking density depends chiefly on the degree of acetalisation and on the number of OH groups available for the reaction, respectively. The water resistance of Mowital and Pioloform grades rises with increasing degree of acetalisation. Hydroxyl groups in the molecule are responsible for the excellent adhesion to polar surfaces and high toughness of the polymers. Mowital in particular is ideal for the manufacture of ceramic slurries and cast films, because of its very good crosslinking properties, excellent binding power and elasticity polyvinyl butyral. Since it undergoes virtually complete combustion it is a preferred temporary binder for the production of high performance ceramics.



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
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