Mowiol® - Glass fiber non-woven

Most glass fiber non-woven material today is used as the core material in the manufacture of bitumenized roofing felt or as the backing for PVC coverings. The inorganic fiber is completely rot-proof and therefore superior to the paper felt used previously. The requirements imposed on the non-woven binder are corresponding high.

The required properties of the two constituents of the non-woven - fiber and binder – are classified in DIN 52 141 (Glass fiber non-woven as a reinforcing material for roofing and sealing sheeting / Definition, Designation, Requirements). The relevant test methods are described in DIN 52 142 (Glass fiber non-woven as a reinforcing material for roof and sealing sheeting – Testing). Other relevant DIN standards are No 51 143 (Bitumenized glass fiber non-woven roofing material / Definition, Designation, Requirements) and 52 123 (Roofing board and bare board testing methods).

The binder property profile laid down in these standards is ideally fulfilled by several Mowiol grades. Mowiol
28-99 (medium viscosity, giving film with low cold-water solubility) is particularly suitable for this area of application. The polymer is precipitated onto the glass fiber from aqueous solution or in the form of swollen particles and gives the non-woven the desired high tear strength.

The heat stability and hot-water resistance of the bonded glass fiber non-woven can substantially increased, if necessary, by adding water-soluble urea, phenolic or melamine formaldehyde resin pre-condensates (e.g. Madurit MW 3816) to the Mowiol finishing liquor. By acid catalysis or the use of elevated temperatures these products also condense with the functional groups of the Mowiol and thus yield three-dimensionally cross-linked polymers.

The proportion of Mowiol to Madurit can be varied within wide limits. Even a 5:1 mixture produces a noticeable effect in terms of the strength and thermal stability of the bonded glass fiber non-woven. As the proportion of Madurit increases, so, too, does the stiffness of the finish.

Hydrophobic non-woven can be obtained with the above resin combination by adding small quantities of special polysiloxane compounds.

Another way of increasing the water-resistance of Mowiol-bonded non-woven is to subject them to such high thermal loads during the drying phase that the Mowiol hardens to a horn-like consistency. As a result the binder becomes hydrophobic.

Kuraray America, Inc. • 101 East 52nd Street, 26th Floor • New York, NY 10022
Tel: 212 986-2230 • Fax: 212 867-3543 • Web: www.kuraray-am.com