SharkDispersion™

Is the trade name for Shark Solutions water based dispersion made of 100 % post consumer recycled Polyvinyl Butyral in various grades.

SharkDispersion™ is a homogeneous water based dispersion, meaning that the dispersing water based phase and the disperse PVB-based phase form extended uniform blended structures with a “particle size” in the colloidal range: < 50 µm. This means that the dispersion show shows the Tyndall-effect (fogging effect if light passes through the media).

In this emulsion no precipitation occurs when stored under normal conditions +1 to 28 degrees centigrade, which is the optimal temperature storage range. However, damage may occur if exposed to temperatures below 1 °C and the product should be inspected.

Delivery form:
- Emulsion of plasticized Polyvinyl Butyral (PVB) with milky white appearance.
- Total Solids content: 45-48 % (w/w).
- pH value: 9-10.
- Density: 1.03 g/ml.
- Brookfield viscosity < 600 cps (=mPas). LVF NO 3 spindle, 20 rpm @ 20 °C.
- Free of Phthalate based plasticizers.

SharkDispersion™ does not contain biocides as high pH level helps to avoid bacteria. If biocides are required we offer the addition of DOW’s Bioban BP-40 (0.001 part wet) which does not result in any health risks.

Shark Dispersions are stable aqueous dispersions of (plasticized) PVB originating from recycling post-consumer laminated PVB and glass from windshields and laminated architectural/building glass.

The dispersions can be used as a main component / binder or as a performance enhancing additive in water-based coatings.

The dispersions are film forming and dry at normal room temperature. They are cross-linkable and they can be mixed / formulated with a variety of emulsions and water dispersible resins due to excellent compatibility.

The PVB induced changes of the properties of a mixture with other products work in many directions, very dependent on the composition of the blend and the achieved microstructure of the final product after process drying. Small changes of ratios in the composition may change the entire phase picture of the product giving new opportunities to fabricate entirely new products with new material properties.

It is easily applied by brush, dip, roller, spray, spreader, foam, or aerosol. However, be aware that when dispersion is exposed to air it begins to dry - meaning skinning may occur. If sprayed keep nozzles moist - and container closed.
PVB in a water-based emulsion has adhesive properties if the materials to be glued are porous or diffusion open.

**SharkDispersion™ is available in 2 grades:**
- SharkDispersionMW™; $d_{50}$ particles less than 0.15 microns
- SharkDispersionLG™; $d_{50}$ particles between 0.15 and 0.30 microns

**Examples of applications...**

**Water borne paints, coatings and Inks**
SharkDispersions™ are very suitable for applications as a binder in various types of paints and inks. Furthermore the dispersion also has the capability to function as a product specific enhancing additive, improving properties like toughness, flexibility, film resistance and durability.

Generally as a good starting point it is recommended to replace 10–20% of current binder – solids on solids.

Any mix ratio may however be chosen, depending on the specific balance of desired properties of the end product. In most cases it should be possible to save part of or all of the film forming agents (coalescing agents and co-solvents), when SharkDispersion™ is used as a co-binder, since it already contains some plasticizers.

The PVB dispersion can also be used / formulated as the sole binder for primers on concrete and masonry interior and exterior.

**Temporary /Peelable /Strippable Coatings**
SharkDispersion™ can be formulated as a ready to use temporary or pealable coating on numerous surfaces such as metal, coil coated surfaces, glass, glass-fibers, polyesters or other plastics. The temporary coating is removed e.g. when goods are ready for painting or assembly, thus retaining a clean surface.

**Paper Coating**
By using the (diluted) dispersion as a coating the durability and abrasion resistance of the finished product is increased. SharkDispersion™ may, for example, be used in packaging materials, wallpaper and window shades to produce washable, greaseproof coatings.

**Textiles**
Again the dispersion is suitable to be used for improving the durability and abrasion resistance of textiles. The dispersion may also strengthen textiles and assist in retaining colors. Applied correctly, the dispersion gives the following materials an optimal finish - cotton, rayon, nylon, curtain and upholstery materials, canvas and awnings. When used in formulations, i.e. a thicker compound, the dispersion is highly recommended for utilization as carpet backing binder or as a fixing agent.

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