This is an unofficial translation. Only the German version is binding.

XII. Unsaturated Polyester Resins

As of 01.01.2010

There are no objections to the use of unsaturated polyester resins in the manufacture of commodities in the sense of § 2, Para. 6, No 1 of the Food and Feed Code (Lebensmittel- und Futtermittelgesetzbuch), provided they are suitable for their intended purpose and the following conditions are met:

1. The use of starting materials for unsaturated polyester resins is subject to the Commission Regulation (EU) No 10/2011.

The evaluation presented in the following refers to polymers from the following monomeric starting substances:
Fumaric acid
Maleic acid
Methacrylic acis
Adipic acid
Phthalic acid
Isophthalic acid
Terephthalic acid
Hydrogenated resp. halogenated phthalic acids as far as covered by the positive list of the Commission Regulation (EU) No 10/2011
Rosin acids
Aliphatic and aliphatic substituted mono-Tricyclodecane di or polyhydric alcohols up to C_{18} as far as covered by the positive list of the Commission Regulation (EU) No 10/2011
Styrene
Acrylic and methacrylic acid esters of alcohols C_1-C_4 as far as covered by the positive list of the Commission Regulation (EU) No 10/2011
Tricyclodecandimethanol

2. Additives permitted by the Commission Regulation (EU) No 10/2011 may be used in accordance with the restrictions laid down therein. In addition to these, only the following production aids, used during manufacture and processing, or their conversion products, may be contained in the raw resin or in finished products made from it, in the maximum amounts given (based on the resin):
   a) Accelerators
      Tertiary amines derived from aniline- or toluidine[1], in total max. 0.1 % nitrogen
      Naphthenic acid, cobalt salt, octanoic acid, cobalt salt, in total max. 0.03 % cobalt
      Octanoic acid, copper salt, max. 0.005 % copper.

[1] Extracts obtained in accordance with Section A II No 1 and B of Communication 1 on the "testing of plastics used for commodities in the sense of the Food Act (Lebensmittelgesetzes)" in Bundesgesundheitsblatt 4 (1961) 189, must contain no more than 1 ppm nitrogen.

b) Catalysts

Benzoyl peroxide Cumyl hydroperoxide Cyclohexanone peroxide Di-tert-butyl peroxide Methylethylketone peroxide tert-Butyl peroxybenzoate tert-Butylperoxy-(2-ethylhexanoate) tert-Butyl hydroperoxide Acetylacetone peroxide Methylisobutylketone peroxide tert-Butyl-per-3,5,5-trimethylhexanoate 2,2-Bis-(tert-butylperoxy)-butane	in total max. 3.0 %

The following may be used as pasting agents for the above catalysts:

Dimethyl phthalate Dibutyl phthalate[2] Diisobutyl phthalate[3] Dicyclohexyl phthalate Triethyl phosphate, max. 2.0 %	in total max. 3.0 %

c) Inhibitors

Dihydric (incl. substituted) phenols, max. 0.05 %[4]

3. In finished products made from a combination of resin and fibres, which are subject to mechanical wear, the fibres must not be in direct contact with the surface.

4. Before finished products enter the market they must be sufficiently tempered[5] and sub-sequently thoroughly washed for 1 – 2 hours in hot water at 80 °C, or steam treated. The finished products must not test positively for peroxides[6].

5. Based on resin content, volatile organic components and water-soluble components must not exceed 25 mg/dm^2 and 5 mg/dm^2, respectively[7].

[2] Permitted in accordance with the Commission Regulation (EU) No 10/2011. Migration of this substance into foodstuffs is regulated by the Commission Regulation (EU) No 10/2011.

[3] Restrictions applying to dibutyl phthalate also apply to diisobutyl phthalate.

[4] In parts permitted in accordance with the Commission Regulation (EU) No 10/2011. Migration of this substance into foodstuffs is regulated by the Commission Regulation (EU) No 10/2011.

[5] Tempering must be carried out so that the requirements of 5. are met.

[6] See 58th Communication on the testing of plastics, Bundesgesundheitsblatt 40 (1997) 412

[7] Compare 27th Communication on the testing of plastics (determination of volatile organic components in commodities made from unsaturated polyester resins), Bundesgesundheitsblatt 16 (1973) 332, and also the 15th Communication on the testing of plastics, Bundesgesundheitsblatt 13 (1970) 203.