ATLAS CHEMICAL INDUSTRIES, INC.
CHEMICALS DIVISION
WILMINGTON, DELAWARE 19899

FOOD AND DRUG ADMINISTRATION APPROVAL OF "ATLAC" 382 IN FOOD-CONTACT APPLICATIONS

The Food and Drug Administration has approved the use of Atlac 382 and Atlac 387, patented bisphenol-A unsaturated polyester-styrene copolymer resins in the production, packaging and storing of food products.

Below is the text of the revised regulation of September 16, 1966.

(56,926) Cross-linked polyester resins

§ 121.2576 Cross-linked polyester resins may be safely used as articles or components of articles intended for repeated use in contact with food, in accordance with the following prescribed conditions:

(a) The cross-linked polyester resins are produced by the condensation of one or more of the acids listed in subparagraph (1) of this paragraph with one or more of the alcohols or epoxides listed in subparagraph (2) of this paragraph, followed by copolymerization with one or more of the cross-linking agents listed in subparagraph (3) of this paragraph:

(1) Acids:

Adipic.
Fatty acids, and dimers thereof, from natural sources.
Fumaric.
Isophthalic.
Maleic.
Methacrylic.
Orthophthalic.
Sebacic.
Terephthalic.
Trimellitic.

(2) Polyols and polyepoxides:

Butylene glycol.
Diethylene glycol.
2,2-Dimethyl-1,3-propanediol.
Dipropylene glycol.
Ethylene glycol.
Glycerol.
4,4'-Isopropylidenediphenol-epichlorohydrin.
Mannitol.
a-Methyl glucoside.
Pentaerythritol.
Polyoxypropylene ethers of 4,4'-isopropylidenediphenol (containing an average of 2-7.5 moles of propylene oxide).
Propylene glycol.
Sorbitol.
Trimethylol ethane.
Trimethylol propane.
2,2,4-Trimethyl-1,3-pentanediol.

(3) Cross-linking agents:

Butyl acrylate.
Butyl methacrylate.
Ethyl acrylate.
Ethylhexyl acrylate.
Methyl acrylate.
Methyl methacrylate.
Styrene.
Vinyl toluene.

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(b) Optional adjuvant substances employed to facilitate the production of the resins or added thereto to impart desired technical or physical properties include the following, provided that the quantity used does not exceed that reasonably required to accomplish the intended physical or technical effect and does not exceed any limitations prescribed in this section:

List of substances	Limitations (limits of addition expressed as percent by weight of finished resin)
1. Inhibitors:	Total not to exceed 0.08 percent.
Benzoquinone	0.01 percent.
tert-Butyl catechol	
tert-Butyl hydroquinone	
Di-*tert*-butyl hydroquinone	
Hydroquinone	
2. Accelerators:	Total not to exceed 1.5 percent.
Benzyl trimethyl ammonium chloride	0.05 percent.
Calcium naphthenate	
Cobalt naphthenate	
Copper naphthenate	
N, N-Diethylaniline	0.4 percent.
N, N-Dimethylaniline	0.4 percent.
Ethylene guanidine hydrochloride	0.05 percent.
3. Catalysts:	Total not to exceed 1.5 percent, except that methyl ethyl ketone peroxide may be used as the sole catalyst at levels not to exceed 2 percent.
Azo-bis-isobutyronitrile	
Benzoyl peroxide	
tert-Butyl perbenzoate	
Chlorbenzoyl peroxide	
Cumene hydroperoxide	
Dicumyl peroxide	
Lauroyl peroxide	
p-Menthane hydroperoxide	
Methyl ethyl ketone peroxide	
4. Solvents for inhibitors, accelerators, and catalysts:	
Butyl benzyl phthalate (containing not more than 1.0 percent by weight of dibenzyl phthalate).	
Dibutyl phthalate	
Diethylene glycol	As a solvent for benzyl trimethyl ammonium chloride or ethylene guanidine hydrochloride only.
Dimethyl phthalate	
Methyl alcohol	
Styrene	
Triphenyl phosphate	
5. Reinforcements:	
Asbestos	
Glass fiber	
Polyester fiber produced by the condensation of one or more of the acids listed in paragraph (a) (1) of this section with one or more of the alcohols listed in paragraph (a) (2) of this section.	

List of substances	Limitations (limits of addition expressed as percent by weight of finished resin)
6. Miscellaneous materials:	
Castor oil, hydrogenated	
a-Methylstyrene	
Polyethylene glycol 6000	
Silicon dioxide	
Wax, petroleum	Complying with § 121.2586.

(c) The cross-linked polyester resins, with or without the optional substances described in paragraph (b) of this section, and in the finished form in which they are to contact food, when extracted with the solvent or solvents characterizing the type of food and under the conditions of time and temperature characterizing the conditions of their intended use, as determined from tables 1 and 2 of § 121.2526(c), shall meet the following extractives limitations:

(1) Net chloroform-soluble extractives not to exceed 0.1 milligram per square inch of food-contact surface tested when the prescribed food-simulating solvent is water or 8 or 50 percent alcohol.

(2) Total nonvolatile extractives not to exceed 0.1 milligram per square inch of food-contact surface tested when the prescribed food-simulating solvent is heptane.

(d) In accordance with good manufacturing practice, finished articles containing the cross-linked polyester resins shall be thoroughly cleansed prior to their first use in contact with food.

(As amended, 31 F. R. 290, effective January 11, 1966.)

REICHHOLD
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PRODUCT BULLETIN

Creatively connecting knowledge and application.

ATLAC&DION

ATLAC® 382-05, 382-05A, 382-05AC

BISPHENOL FUMARATE RESINS

DESCRIPTION

ATLAC® 382-05, 382-05A, and 382-05AC are premium bisphenol-A fumarate resins that demonstrate excellent corrosion resistance in a wide range of aggressive environments.

ATLAC® 382 resins have been used for more than 35 years to manufacture fiberglass-reinforced structures and flakeglass-reinforced coatings mortars for use in pulp and paper, caustic-chlorine, metal treatment and many other chemical industries. This family of resins has long been recognized as the industry standard.

FEATURES	BENEFITS
• Bisphenol-A fumarate polymer	• Resists degradation due to hydrolysis and other forms of chemical attack
	• Does not foam upon addition of MEKP initiators
	• Can be mixed using conventional (not hydrophobic) grades of fumed silica
• High crosslink density	• Resists deterioration and deformation in high-temperature environments
	• No need for expensive multi-veil corrosion barriers
• Pre-accelerated version available	• Provides all of the flexibility of a non-promoted resin without requiring addition of dimethylaniline
• Chemical components listed under FDA 177.2420 Title 21	• Items properly fabricated with ATLAC® 382 series resins can be used for food, beverage and water storage
• Manufactured using statistical process control in ISO 9002-certified plants	• Consistent batch-to-batch performance

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