Bostik
smart adhesives

Can Coatings

RESINS FOR INTERNAL CAN COATING FORMULATIONS

SMART SOLUTIONS FOR COPOLYESTERS

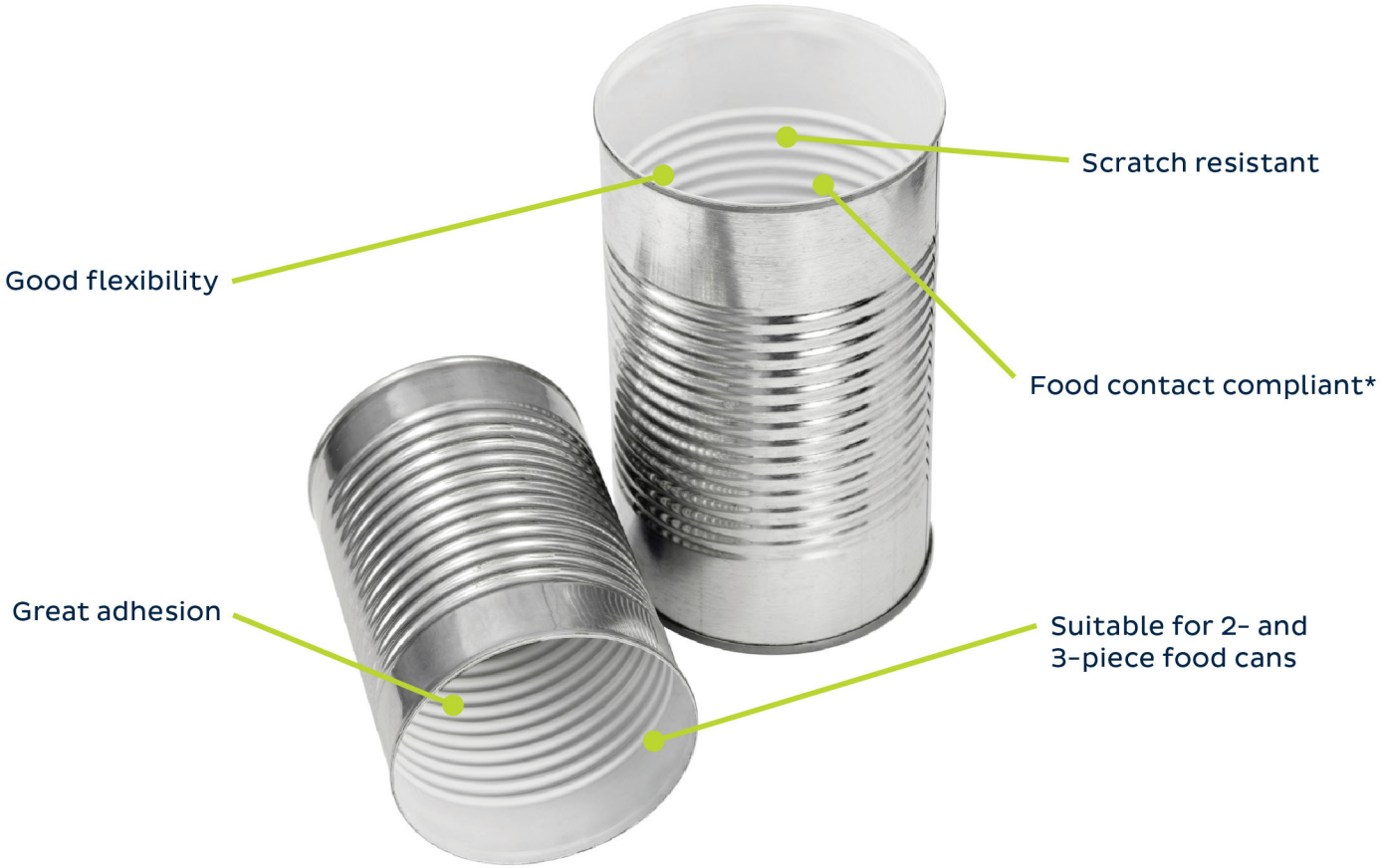
The demand for copolyesters as can coating resins has increased significantly due to market changes and increased consumer awareness. Bostik's range of high-quality copolyester resins for interior can and coil coating formulations keeps ahead of those trends and continues to meet food packaging demands for customers around the world.

Bostik's copolyesters are available in solid or solvated form for use in a variety of applications, including flexible packaging and heat seal lidding. Bostik resins for interior can coating formulations comply with FDA regulations for direct food contact and do not contain potentially hazardous BPA (Bisphenol A) in their manufacture. Bostik copolyester resins allow formulators to customize the levels of performance, such as flexibility and chemical resistance, while being organoleptically neutral.

The relationship between Bostik and Arkema is another convenient benefit to customers, as Arkema manufactures products for use in external can coatings that complement the technologies Bostik creates for interior can coatings. With worldwide product availability, offices around the world, and more than 125 years of industry knowledge and expertise, Bostik is a trusted choice in can coatings.

BENEFITS OF COPOLYESTER RESINS

When formulated with a cross-linker, Bostik's line of Vitel® copolyesters offer excellent adhesion, chemical resistance and superior acid resistance. Additionally, our Vitels maintain integrity under aggressive retort conditions.



*Contact a local Bostik Product Safety and Regulatory Affairs representative for documentation regarding direct food contact compliance or other regulatory requirements.

FEATURED PRODUCTS

V2200B

Vitel 2200B is a linear saturated, high molecular weight copolyester resin that exhibits excellent hardness and chemical resistance. This resin can be used either alone or modified with lower T_g Vitels to improve flexibility and coatability. V2200B provides excellent chemical, acid and retort resistance with superior clarity.

V2700B

Vitel 2700B is a linear saturated, high molecular weight copolyester resin that offers performance at the level of V2200B, but it was designed specifically to have improved flexibility and adhesion to metals. V2700B also offers excellent toughness and chemical, acid and retort resistance.

V3200B

Vitel 3200B is a low T_g, linear saturated, high molecular weight copolyester resin. It offers the same clarity and excellent adhesion as the 2000 series in a softer, more flexible coating. Its main purpose in can coatings is as a modifier of the 2000 series Vitels when better flow, flexibility and adhesion are needed.

V2270B

Vitel 2270B is a high molecular weight, linear saturated, copolyester resin. This resin can be used alone or as a modifier in applications where high cohesive strength is of importance. V2270B offers excellent clarity, hardness and abrasion resistance with strong adhesion to metals. As a copolyester resin, this product also has inherent UV stability and resistance to plasticizers.

V2401

Vitel 2401 is a linear saturated, high molecular weight copolyester resin designed for high performance coating applications. This resin offers particular benefit to interior can coating formulations. A high glass transition temperature contributes to the excellent chemical resistance of V2401 and helps coatings withstand aggressive sterilization cycles.

V2475

Vitel 2475 is a saturated, linear, high molecular weight copolyester resin designed for high-performance coating applications. This resin offers particular benefit to interior can coating formulations because of its excellent flexibility and durability when cross-linked. A high glass transition temperature contributes to the excellent chemical resistance of V2475 and provides resistance to aggressive canning sterilization cycles. V2475 is formulated without BPA and can be used in applications requiring compliance with alcohol products greater than 8% ABV. When used as a modifier, this product can greatly improve coating durability, as well as heat and chemical resistance.

Resin	Morphology	Glass Transition (°C)	Melt Flow (°C)	Intrinsic Viscosity (dl/g)	Acid Number	Hydroxyl Number	Molecular Weight (M_w)	Acetates[1]	Ketones[2]	Aromatics[3]	Specialty Solvents[4]	Curing Agent(s)	Advantages
V2200B	A	69	155	0.59	1-3	3-5	47,500	●	●	●		a,b	Excellent sterilization, chemical and acid resistance
V2270B	A	43	142	0.76	1-2	3-6	47,500	●	●	●		c	Excellent sterilization, chemical and acid resistance, good flexibility
V2700B	A	50	142	0.74	1-2	2-5	67,000	●	●	●		b,c	Excellent sterilization, chemical and acid resistance
V3200B	A	15	129	0.78	0-2	3-6	63,500	●	●	●	●	b,c	Excellent flexibility, modifier for 2000 series Vitels
V2401	A	105	>200	0.41	0.1-2.5	10-15	28,000		◊	◊		a,b	Excellent sterilization and chemical resistance
V2475	A	77	165	0.48	0.1-2.5	6-12	32,500		●	●	●	a,b	Excellent flexibility, sterilization and chemical resistance

● - Soluble up to 40% solids
◊ - Requires co-solvent MEK: Xylene 50:50 up to 21% solids
o - Soluble at low solids (~15-20%) at 50°C

A - Amorphous
SC - Semi-crystalline
C - Crystalline

a - Melamine
b - Benzoguanamine
c - Blocked Isocyanate

[1] Ethyl acetate, butyl acetate
[2] Acetone, methyl ethyl ketone, methyl propyl ketone, cyclohexanone
[3] Toluene, xylene
[4] Tetrahydrofuran, 1, 3 dioxolane

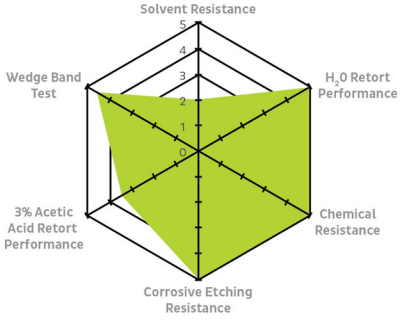
FORMULATION

Bostik's Vitel resins offer excellent coating performance when formulated with melamine, benzoguanamine and blocked polyisocyanate cross-linkers. An example of the coating performance that Bostik's Vitels provide can be seen in the following table.

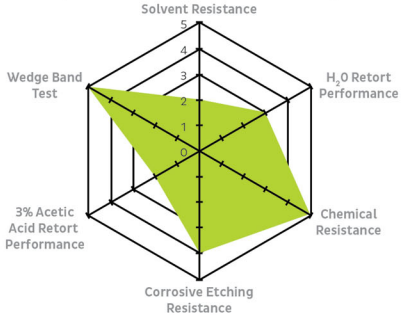
Coating Performance				
Test	**V2700B**	**V2270B**	**V2401**	**V2475**
Coating Thickness	12 µm (≈15 g/m²)			
Substrate	0.25 mm SAE 1008/1010 Steel (tinplate)			
Adhesion[1]	5B	5B	5B	5B
Chemical Resistance[2]				
Mustard (24 hr)	5	5	5	5
Grape Juice (24 hr)	5	5	5	5
Retort Resistance[3]				
Deionized H_2O	5	5	5	5
3% Acetic Acid	3.5	2	4	4.5
Wedge Bend	100%	100%	95%	100%
Scratch Resistance[4]	HB	B	6H	6H
Mandrel Flexibility[5]	No Cracking	No Cracking	No Cracking	No Cracking

[1] ASTM D3359. 5B = 0% adhesive failure, 0B = Greater than 65% failure
[2] Uncovered, room temperature. 5= no damage, 0 = severe damage.
[3] Sterilized at 121°C for 60 minutes. 5 = no damage, 0 = severe damage.
[4] ASTM D3363. Hardest pencil lead that would not scratch coating. Softest to hardest are as follows: 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H
[5] ASTM D522. Samples showed no signs of cracking when using a conical mandrel with a minimum diameter of 1/8 in (0.32 cm).

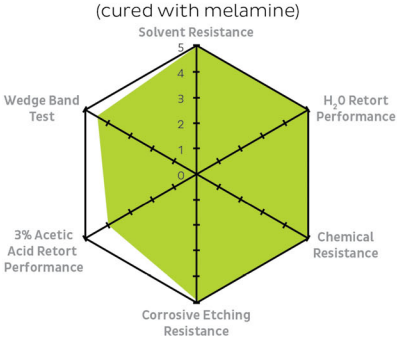
V2700B
(cured with benzoguanamine)



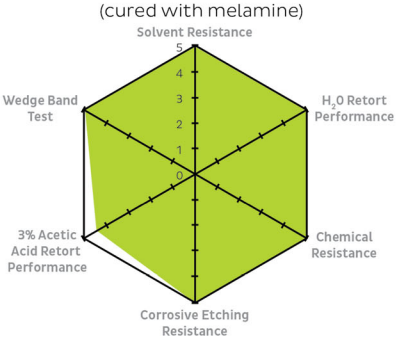
V2270B
(cured with blocked isocanate)

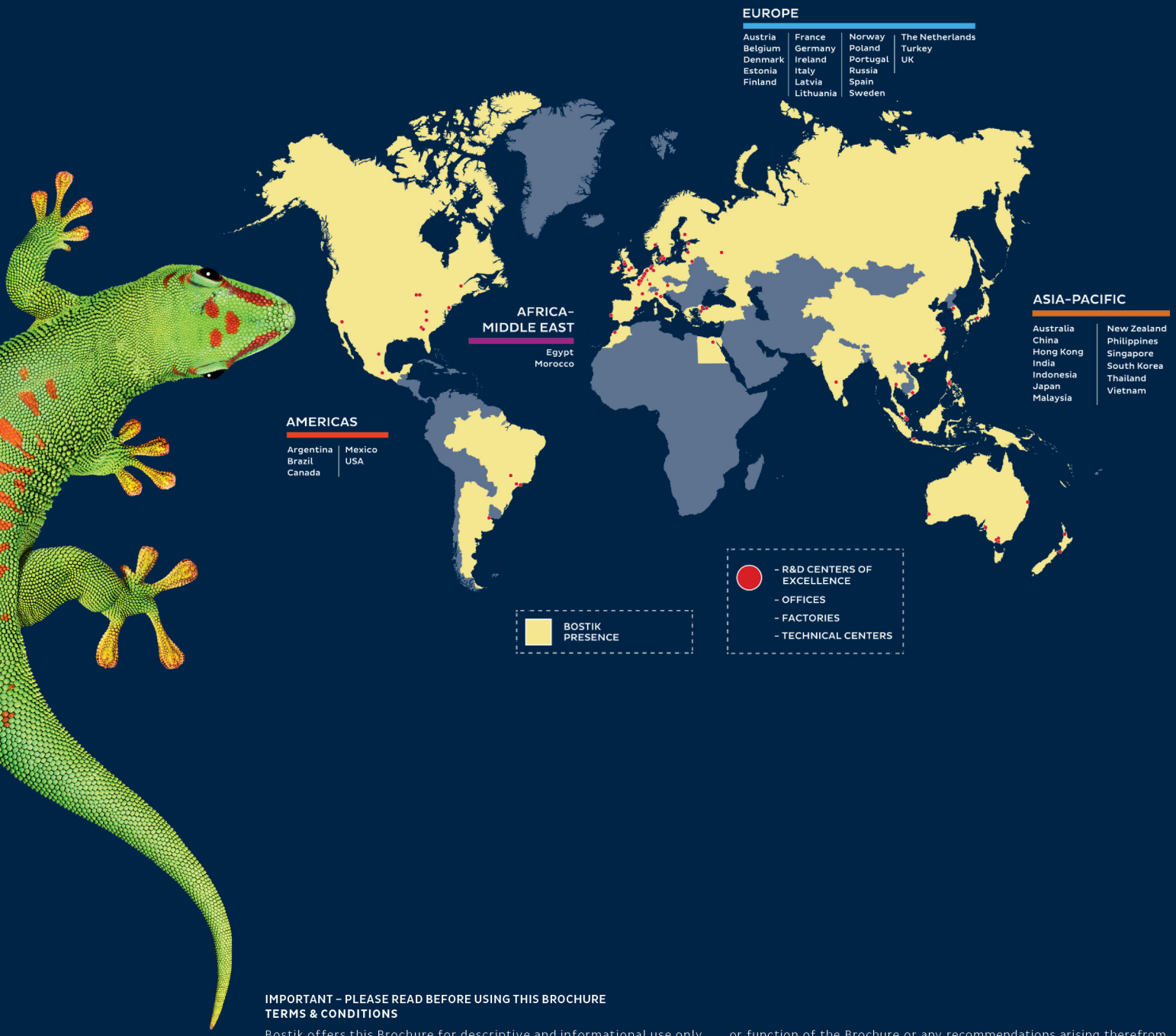


V2401
(cured with melamine)



V2475
(cured with melamine)





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