

VINNAPAS® POLYVINYL ACETATE

YOUR FIRST CHOICE FOR HIGH CLASS GUM BASE

VINNAPAS® polyvinyl acetate is a key ingredient in all modern types of gum base worldwide. Gum base is the water-insoluble component of chewing gum which serves as the carrier for sweeteners and flavors.

For more than 50 years, WACKER has been marketing polyvinyl acetate to the chewing gum industry under the trade name VINNAPAS®. VINNAPAS® polyvinyl acetate is produced by bulk polymerization. These odorless and tasteless thermoplastic resins are manufactured to international food-industry standards.

Why is VINNAPAS® Polyvinyl Acetate an Important Ingredient of Gum Base?

It is not only important to obtain the right texture and excellent chew properties, PVAc also has a very important impact on the flavor and sweetener release profile.

Other advantages are:

- Thermally stable
- High chemical resistance
- Hydrophobic/hydrophilic balance
- No antioxidants required
- Less plasticizer needed
- Storage stability

All raw materials are derived from petrochemical sources, therefore VINNAPAS® PVAc is GMO free by nature. The products

do not need to be labeled according to Regulations 1829/2003/EC and 1830/2003/EC. VINNAPAS® products do not contain allergens listed in Directive 2003/89/EC or Directive 2006/142/EC.

VINNAPAS® Polyvinyl Acetate Product Overview

VINNAPAS® polyvinyl acetate is manufactured to high quality standards. Clear, colorless resins are prepared by the polymerization of vinyl acetate.

Production and analysis according to

- ISO 9001
- ISO 14001
- HACCP

ensures constant high quality from the starting raw materials to the finished products.

VINNAPAS® Product Range

The grades of VINNAPAS® resins differ in molecular weight. Higher molecular weights generally lead to higher softening points and result in a firmer chew of the finished gum.

The product range contains

- polyvinyl acetate homopolymers as B grades and
- copolymers of polyvinyl acetate with vinyl laurate as VL grades.

The VINNAPAS® VL copolymers of vinyl acetate and vinyl laurate are permanently flexible and softer than homopolymeric B grades.

All VINNAPAS® Polyvinyl Acetate Resins Comply with the Following Regulations

	B grades	VL grades
FDA 21 CFR§172.615	•	
Food Chemicals Codex (FCC)	•	
German Chewing Gum Regulations	•	•
French Chewing Gum Regulations	•	•
Italian Gum Base Regulations	•	•
Spanish Chewing Gum Regulations	•	•
Japan's Specifications and Standards for Food Additives	•	
Chinese Chewing Gum Regulation	•	•

Properties and Technical Data

Grade	Supply form	Viscosity ^{1,7} [mPa.s]	Molecular weight ^{2,8} Mw [g/mol]	Mettler softening point ^{3,8} [°C]	Melt viscosity ^{4,8} at 120°C [Pa.s]	K value ^{5,8}	Glass transition temperature ^{6,8} Tg [°C]	Vinyl acetate [%]
B 1.5 sp	pastilles	1.2 – 1.4	15,000	85	appr. 30	19 – 21	appr. 32 – 34	100
B 5 sp	pastilles	1.6 – 2.0	25,000	95	appr. 120	25 – 27	appr. 33 – 35	100
B 14 sp	pastilles	1.9 – 2.3	33,000	101	appr. 400	26 – 28	appr. 37 – 39	100
B 17 sp	pellets	2.5 – 3.0	40,000	107	appr. 600	29 – 33	appr. 38 – 40	100
B 30 sp	pellets	3.0 – 3.5	50,000	113	appr. 1,300	31 – 35	appr. 38 – 40	100
B 60 sp	pellets	3.5 – 5.0	65,000	119	appr. 2,600	38 – 42	appr. 41 – 43	100
B 100 sp	pellets	5.0 – 6.5	90,000	133	appr. 5,000	41 – 45	appr. 41 – 43	100
B 500/20 VL	block	8.0 – 12.0	150,000	90-100	appr. 2,000	48 – 52	appr. 20 – 22	≥ 80
B 500/40 VL	block	8.0 – 12.0	220,000	very soft	appr. 400	47 – 55	appr. 0	≥ 60

All Grades have the Additional Characteristics

	Residual monomer content VAM [ppm]	Free acetic acid [%]	Loss on drying [wt %]	Appearance	Bulk density [g/l]
B grades	< 5	< 0.05	< 1.0	clear, colorless, odorless and tasteless	appr. 700
VL grades	< 5	< 0.05	< 1.0	colorless to pale yellowish	–

1) ASTM D445-06; 10 wt % in ethyl acetate

2) Size exclusion chromatography; PS standard; THF; 60°C, weight average

3) ASTM 3104

4) Bohlin high temperature viscosity; Bohlin CVO 120, Heating rate 5°C/min, parallel plates

5) DIN 53726; 1 wt % in acetone

6) Differential scanning calorimetry; Mettler DSC 821 E; Heating rate 20°C/min

7) For current specification please check technical data sheet

8) The above data are given as a guideline only; they are not intended as product specifications

This unique product range enables our customers to produce a wide variety of tailor-made gumbase products. Special VINNAPAS® grades are available upon request. VINNAPAS® pastilles and pellets are dust-free. The free-flow properties allow easy handling and precise dosage.

General Information
Storage of VINNAPAS® Polyvinyl Acetate

VINNAPAS® polyvinyl acetate exhibits excellent stability when stored under cool and dry conditions. However, as thermoplastic materials, it is strongly recommended that VINNAPAS® B grades should be stored below 20°C to retain their free-flow characteristics.

Packaging
VINNAPAS® B grades:

Paperbag, 25kg net weight

Big Bag, 1,000kg net weight

VINNAPAS® VL grades:

Carton, 25kg block net weight

Solubility of VINNAPAS® Polyvinyl Acetate in Solvents

	B grades	B 500/20 VL	B 500/40 VL
Water	–	–	–
Methanol	+	+	–
Ethanol	–	±	±
Ethanol 95%	+	+	±
Acetone	+	+	+
Ethyl acetate	+	+	+
Chloroform	+	+	+
Toluene	+	+	+
Aliphatic hydrocarbons	–	–	–

+ = soluble – = insoluble ± = partly soluble

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The data presented in this brochure corresponds with the present state of our knowledge but does not absolve the user from carefully checking all supplies immediately upon receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this brochure should be checked through preliminary tests because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a guarantee, either express or implied, of the fitness or suitability of the product for a particular purpose.