Comparison of UV Oligomer Performance

Property	Polyester Acrylate	Epoxy Acrylate	Aliphatic Urethane Acrylate
Hardness and Abrasion Resistance	Balanced hardness, good wear resistance	High hardness, good scratch resistance	Tough and durable, high wear resistance
Flexibility and Elongation	Good flexibility, moderate elongation	Low flexibility, brittle in thin layers	High flexibility, excellent elongation
Chemical Resistance	Moderate to good resistance	High resistance to chemicals	Very high resistance to chemicals and solvents
UV Curing Speed and Reactivity	Medium curing speed	Fast curing, high reactivity	Fast to medium curing speed
Gloss and Surface Quality	Typically, high gloss and excellent surface quality	Can provide high gloss	Moderate to high gloss
Adhesion and Wetting Properties	Good adhesion to various substrates	Good adhesion, limited on low-energy surfaces	Excellent adhesion to diverse surfaces
Weather and UV Resistance	Good UV and weather resistance	Limited UV resistance, can yellow	Excellent UV and weather resistance

hubergroup Chemicals is one of the largest manufacturers in the chemical sector, offering a broad product portfolio of specialty chemicals, including Pigments and Concentrates, Lamination Adhesives, UV-Monomers, and UV-Oligomers. With our custom manufacturing business, we can also design and manufacture products exactly to our customers' requirements. We are committed to innovation and excellence, offering a wide array of specialty chemicals tailored to meet the unique demands of our valued clients. To date, hubergroup Chemicals has developed into a major chemical supplier that sells its products to all over the world, in all business areas and to customers ranging from SMEs to large, world-renowned chemical companies.

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UV Oligomers for Coatings

A great basis for modern formulations

hubergroup Chemicals

Designed in Germany – Made in India

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hubergroup UV-Oligomers for Coatings - a great basis for modern formulations

Key Facts: Our Polyester Acrylate, aliphatic Urethane Acrylate and Epoxy Acrylate UV Oligomers for Coating Applications offer a great basis for modern formulations. Their versatility enables the development of coatings with excellent hardness, flexibility, chemical resistance, and durability, meeting the demanding requirements of today's applications.

What are UV-Oligomers for Coatings? UV-curable oligomers are essential components in modern coating formulations, offering rapid curing, energy efficiency, and high-performance properties. Whether used in protective, decorative, or functional coatings, these materials provide tailored solutions for diverse industries.

Our offer for Polyester Acrylates

Product	Product Description	Viscosity	Acid Value	Hydroxyl Value	Average Functionality	Double Bond Density	Bio Renewable Content
		Pa·s	mg KOH/g	mg KOH/g		mol / kg	%
UHVO-221019	Polyester Acrylate BPA-free	100 - 130[1)]	≤ 19	15 - 35	6	6.0 - 7.0	10
UHVO-221020 **	Polyester Acrylate BPA-free	4 - 6 [1)]	≤ 6	60 - 70	6	5.4 - 6.0	12
UHVO-221022	Polyester Acrylate BPA-free	7 - 10 [2)]	≤ 20	50 - 70	6	7.5 - 9.0	28
UHVO-221023	Polyester Acrylate	25 - 45 [2)]	≤ 20	20 - 60	2-3	3.5 - 5.5	-
UHVO-221024	Polyester Acrylate	15 - 20 [3)]	≤ 5	55 - 75	2-3	3.5 - 5.5	-
UHVO-221025	Polyester Acrylate BPA-free	0.4 - 1 [3)]	≤ 20	65 - 85	4	~ 3.6	15

1) at 20 °C; Physica; D = 5/s 2) at 23 °C; Physica; D=50/s 3) at 25 °C; Physica; D=50/s ** data from lab or pilot trials

These oligomers are based **on polyester structures modified with acrylic acid derivatives**. Their key properties include:

Flexibility – Polyester acrylates provide good flexibility and are less brittle, making them suitable for applications requiring elasticity.

Chemical Resistance – They offer strong resistance to chemicals, especially organic solvents.

Gloss – Coatings formulated with polyester acrylates often exhibit good to excellent gloss levels.

Wetting Properties – They enhance substrate wetting, improving adhesion on various surfaces.

Ease of Processing – Polyester acrylates typically have lower viscosities, which simplifies handling and formulation.

Polyester acrylates are preferred in **flexible coatings and applications requiring chemical resistance and high gloss.**

Our offer for Epoxy Acrylates - any Epoxy Acrylate dilution available on request

Product	Product Description	Viscosity	Acid Value	Average Functionality	Bio Renewable Content
		Pa·s	mg KOH/g		
UHVO-23920	Epoxy Acrylate 100%	85 - 105 [3)]	≤ 2	2	-
UHVO-23922	Epoxy Acrylate 100% Bio-based	100 - 120 [3)]	≤ 0.5	2	~20
UHVO-22912	Epoxydised Soybean Oil Acrylate	15 - 30 [2)]	≤ 10	3 - 4	~82

1) at 25 °C; Physica; D = 50/s 2) At 20 °C, Physica, D = 50/s 3) At 40 °C, Physica, D = 5/s ** data from lab or pilot trials

These oligomers are based on **epoxy structures modified with acrylic acid**. Their key properties include:

Hardness – Epoxy acrylates form very hard and scratch-resistant films, making them ideal for applications requiring mechanical durability.

Chemical and Thermal Resistance – They show outstanding resistance to chemicals and high temperatures.

Reactivitys – Epoxy acrylates generally have higher reactivity than polyester acrylates, resulting in shorter curing times.

Brittleness – Compared to polyester acrylates, epoxy acrylates tend to be more brittle, limiting their flexibility.
Epoxy acrylates are ideal for hard, durable surfaces, such as protective coatings or high-gloss decorative finishes.

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Our offer for Aliphatic Urethane Acrylates

Product	Product Description	Viscosity	Acid Value	Hydroxyl Value	Average Functionality	Double Bond Density
		Pa·s	mg KOH/g	mg KOH/g		mol / kg
UHVO-231029**	Aliphatic Urethane Acrylate BPA-free	200 - 220[2)]	≤ 3	20 - 30	6	6 - 10

1) at 20 °C; Physica; D = 5/s 2) at 23 °C; Physica; D=50/s 3) at 25 °C; Physica; D=50/s ** data from lab or pilot trials

This oligomer is based on **an aliphatic urethane backbone**. The key properties include:

Flexibility & Toughness – Aliphatic urethane acrylates combine high elongation with mechanical strength.

Chemical & Abrasion Resistance – They provide superior protection against chemicals and wear.

UV & Weather Resistance – Aliphatic urethane acrylates do not yellow over time, making it ideal for outdoor applications.

Adhesion to Various Substrates – They ensure strong bonding to diverse surfaces.

Moderate to High Gloss Potential – It enables aesthetic and protective finishes.

Our aliphatic urethane acrylate offers a unique balance of **mechanical performance**, **durability**, and **weather resistance ideal for high performance UV-Coatings**.