

VESTAMID® Terra

VESTAMID® Terra
TECHNICAL BIOBASED
POLYAMIDES



HIGH PERFORMANCE BIOBASED POLYAMIDES

VESTAMID®
Terra HS

VESTAMID®
Terra DS

PROPERTIES

	Test method	Unit	HS16	HS18	HS22	DS16	
Viscosity number	ISO 307	cm ³ /g	160	180	180	160	
Melting temperature	ISO 11357	°C	223	223	223	200	
Glas transition temperature	ISO 11357	°C	48	48	48	37	
Water absorption at RT	Evonik	%	3.3	3.3	3.3	1.8	
Density	ISO 1183	g/cm ³	1.06	1.07	1.08	1.05	
VICAT softening temperature	Method B, 50N	ISO 306	°C	196	196	196	171
	Stress at yield	ISO 527	MPa	61	61	61	54
	Strain at yield	ISO 527	%	5	5	5	5
Tensile test	Strain at break	ISO 527	%	>50	>50	>50	>50
Tensile modulus		ISO 527	MPa	2100	2100	2100	1700
	23 °C	ISO 179/1eU	kJ/m ²	N	N	N	N
CHARPY impact strength	-30 °C	ISO 179/1eU	kJ/m ²	N	N	N	N
	23 °C	ISO 179/1eA	kJ/m ²	6 C	7 C	7 C	7 C
CHARPY notched impact strength	-30 °C	ISO 179/1eA	kJ/m ²	6 C	6 C	6 C	7 C
Biobased content	ASTM 6866	% of C	63	63	63	100	

N = no break C = complete break



DS18	DS22
180	220
200	200
37	37
1.8	1.8
1.06	1.07
171	171
54	54
5	5
>50	>50
1700	1700
N	N
N	N
7 C	11 C
7 C	14 C
100	100

Evonik Industries is offering bio based polymers under the trade name VESTAMID®. There are currently two products within this group of polyamides available that are partially or entirely based on renewable feedstocks:

- VESTAMID® Terra HS (PA610)
- VESTAMID® Terra DS (PA1010)

The monomers used in the Vestamid® Terra line are derived from castor bean oil.

The VESTAMID® Terra products are available in pellet form as a base polymer. Our expertise is to provide tailored solutions for specific application fields. This has led to the development of a wide range of compounds which can contain, e.g. various stabilizers, flame retardants, fiber reinforcements, colouring agents, etc. Detailed information can be obtained upon request.

VESTAMID® Terra HS

VESTAMID® Terra HS is partly based on renewable raw materials and fills the performance gap between the commodity and the niche long-chain nylons.

VESTAMID® Terra HS is the polycondensation product of 1,6-hexamethylene diamine (H) and 1,10-decanedioic acid (sebacic acid—S). Because sebacic acid is derived from castor oil, VESTAMID® Terra HS is a material that is partly based on renewable resources.

Technically speaking, VESTAMID® Terra HS occupies a position between the high-performance polyamide 612 and the standard polyamides PA 6 and PA 66.

VESTAMID® Terra HS is semicrystalline and thus has high mechanical resistance and chemical stability. Due to its higher melting point, VESTAMID® Terra HS has the highest heat deflection temperature of VESTAMID® Terra series.

VESTAMID® Terra DS

VESTAMID® Terra DS is 100 percent natural and in many applications outperforms the niche long-chain nylons.

VESTAMID® Terra DS is the polycondensation product of 1,10-decamethylene diamine (D) and 1,10-decanedioic acid (sebacic acid—S). Because both monomers are derived from castor oil, VESTAMID® Terra DS is a material that is based 100 percent on natural resources.

Technically speaking, VESTAMID® Terra DS occupies a position between the high-performance long-chain polyamides such as PA 12 and the standard polyamides PA 6 and PA 66, which have a shorter chain length.

VESTAMID® Terra DS is semicrystalline, which is the reason for its high mechanical resistance and chemical stability. It absorbs only little water. As a result its mechanical properties vary little when exposed to changing environmental humidity, and the material features a high dimensional stability.

Despite its crystallinity, VESTAMID® Terra DS can be used to manufacture films with good transparency. Compounds based on VESTAMID® Terra DS have high melting points. In turn, high heat deflection temperatures result, which can be advantageous for some applications.

Because of its chemical and physical properties, and the plant origin of its monomers, VESTAMID® Terra DS is an interesting addition to conventional longer-chain polyamides, and it also meets the demand for materials made from renewable raw materials.

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