

## Typical Properties of M-VERA® Injection Moulding Grades

	Unit	M-VERA® GP1012	M-VERA® GP1013	M-VERA® GP1014	M-VERA® GP1015	M-VERA® GP1018	M-VERA® GP1022	M-VERA® ECS1001	M-VERA® ECS1002 <sup>4</sup>	M-VERA® ECS1003 <sup>4</sup>
Food contact approval – EU 10/2011	-	- <sup>5</sup>	- <sup>5</sup>	- <sup>5</sup>	√	√	- <sup>5</sup>	√	√	√
Certificate	-	OK biodegradable SOIL; OK compost HOME <sup>5</sup>	OK compost HOME <sup>5</sup>	OK compost HOME <sup>5</sup>	OK compost INDUSTRIAL	OK compost INDUSTRIAL	OK compost INDUSTRIAL <sup>5</sup>	n.a.	n.a.	n.a.
Renewable content	%	~100	~100	~100	~70	~100	~50	~60	~60	~60
Density	g/cm <sup>3</sup>	1.26	1.44	1.43	1.40	1.28	1.34	1.08	1.13	1.31
MVR (190/2.16)	cm <sup>3</sup> /10 min	13	20	17	20	12	20	n.a.	n.a.	n.a.
Tensile modulus <sup>1</sup>	MPa	2,360	2,450	3,500	4,020	4,500	1,960	2,400	3,400	8,200
Tensile strength <sup>1</sup>	MPa	20	16	25	45	50	34	70	85	160
Tensile stress <sup>1</sup>	MPa	15	22	25	50	45	34	-	-	-
Elongation at yield <sup>1</sup>	%	3	3	2	2	2	2.5	5	-	-
Elongation at break <sup>1</sup>	%	6	16	2.2	3.4	2	22	>50	5	3
Flexural modulus <sup>2</sup>	MPa	2,690	2,600	4,300	5,120	4,410	pending	-	-	-
Flexural stress <sup>2</sup>	MPa	35	36	45	81	90	pending	-	-	-
Flexural strain at break <sup>2</sup>	%	2	5	2.5	3	3	pending	-	-	-
Charpy impact strength <sup>6</sup>	kJ/m <sup>2</sup>	15	15	8	95	15	not broken	not broken	45	70
Charpy notched imp. strength <sup>7</sup>	kJ/m <sup>2</sup>	4	2.5	2	6	3	4.9	4.5	5	12
Izod impact strength <sup>8</sup>	kJ/m <sup>2</sup>	12	10	9	72	12	-	-	-	-
Izod notched impact strength <sup>8</sup>	kJ/m <sup>2</sup>	4	2	2	7	3	-	-	-	-
HDT/A (ISO 75/A)	°C	61	60	75	50 <sup>3</sup>	55 <sup>3</sup>	pending	57	-	205
HDT/B (ISO 75/B)	°C	110	110	115	55 <sup>3</sup>	58 <sup>3</sup>	pending	150	-	-
Flammability (UL 94/0.8 mm)	Class	-	-	-	-	-	-	HB	-	-

<sup>1</sup> according ISO 527-1/-2

<sup>2</sup> according ISO 178

<sup>3</sup> to achieve higher values of HDT, please get in touch with your contact person at BIO-FED for further information

<sup>4</sup> reinforced with glass fibres

<sup>5</sup> certification in progress

n.a. = not applicable

<sup>6</sup> DIN EN ISO 179-1/1eA

<sup>7</sup> DIN EN ISO 179-1/1eU

<sup>8</sup> DIN EN ISO 180



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All M-VERA® products can be colored with AF-Eco® biomasterbatches from AF-COLOR, also certified according to EN 13432. Please note that the use of AF-Eco® might influence the mechanical and/or optical properties of the final part.

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