

- PVOH Standard -

Product from Germany;

	Grade	Viscosity ¹⁾ DIN 53015 [mPa x s]	Degree of hydrolysis (saponification) [mol.-%]	Max Ash content ²⁾ [%]	Max Volatile content ³⁾ [%]
Partially hydrolysed grades	Mowiol 3-85	3.4 - 4.0	84.2 - 86.2	0.5	5.0
	Mowiol 4-88	3.5 - 4.5	86.7 - 88.7	0.5	5.0
	Mowiol 5-88	5.0 - 6.0	86.7 - 88.7	0.5	5.0
	Mowiol 8-88	7.0 - 9.0	86.7 - 88.7	0.5	5.0
	Mowiol 13-88	11.5 - 14.5	86.7 - 88.7	0.5	5.0
	Mowiol 18-88	16.5 - 19.5	86.7 - 88.7	0.5	5.0
	Mowiol 23-88	21.5 - 24.5	86.7 - 88.7	0.5	5.0
	Mowiol 26-88	24.5 - 27.5	86.7 - 88.7	0.5	5.0
	Mowiol 32-88	30.0 - 34.0	86.7 - 88.7	0.5	5.0
	Mowiol 40-88	38.0 - 42.0	86.7 - 88.7	0.5	5.0
	Mowiol 47-88	45.0 - 49.0	86.7 - 88.7	0.5	5.0
	Mowiol 56-88	52.0 - 60.0	86.7 - 88.7	0.5	5.0
	Mowiol 30-92	28.0 - 32.0	91.5 - 93.3	0.5	5.0
Fully hydrolysed grades	Mowiol 4-98	4.0 - 5.0	98.0 - 98.8	0.5	5.0
	Mowiol 6-98	5.0 - 7.0	98.0 - 98.8	0.5	5.0
	Mowiol 10-98	9.0 - 11.0	98.0 - 98.8	0.5	5.0
	Mowiol 20-98	18.5 - 21.5	98.0 - 98.8	0.5	5.0
	Mowiol 30-98	28.5 - 31.5	98.0 - 98.8	0.5	5.0
	Mowiol 56-98	52.0 - 60.0	98.0 - 98.8	1.0	5.0
	Mowiol 15-99	12.5 - 17.5	99.0 - 99.8	0.5	5.0
Mowiol 28-99	26.0 - 30.0	99.0 - 99.8	0.5	5.0	

1) of a 4 % aqueous solution at 20 °C determined by Hoppler viscometer.

2) calculated as Na₂O

3) after 3 hours' drying at 105 °C/DIN 53189. Methanol content: less than 3 %.

*Additional data valid for Mowiol grades

pH of a 4 % solution in distilled water (DIN19261): 4.5 - 7 partially and fully hydrolysed grades.

Bulk density (DIN 53466): approx. 0.4 - 0.6 gcm⁻³, depending on grade.

*The test methods for determining the data are fully described in our "Mowiol-Polyvinyl alcohol" brochure.

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600 Lexington Avenue,
26th Floor, New York,
NY 10022, USA
Phone; 1-212-986-2230
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- PVOH Standard -

Product from Singapore;

	Grade	Viscosity ¹⁾ DIN 53015 [mPa × s]	Degree of hydrolysis (saponification) [mol.-%]	Max Ash content ²⁾ [%]	Max Volatile content ³⁾ [%]
Partially hydrolysed grades	PVA 205	4.6 - 5.4	86.5 - 89.0	0.4	5.0
	PVA 205MB ⁴⁾	4.6 - 5.4	86.5 - 89.0	0.4	5.0
	PVA 205S ⁴⁾	4.6 - 5.4	86.5 - 89.0	0.4	5.0
	PVA 217	20.5 - 24.5	87.0 - 89.0	0.4	5.0
	PVA 217SB ⁴⁾	20.5 - 24.5	87.0 - 89.0	0.4	5.0
	PVA 217MB ⁴⁾	20.5 - 24.5	87.0 - 89.0	0.4	5.0
	PVA 217S ⁴⁾	20.5 - 24.5	87.0 - 89.0	0.4	5.0
	PVA 220	27.0 - 33.0	87.0 - 89.0	0.4	5.0
	PVA 220SB ⁴⁾	27.0 - 33.0	87.0 - 89.0	0.4	5.0
	PVA 220S ⁴⁾	27.0 - 33.0	87.0 - 89.0	0.4	5.0
	PVA 224	40.0 - 48.0	87.0 - 89.0	0.4	5.0
	PVA 224SB ⁴⁾	40.0 - 48.0	87.0 - 89.0	0.4	5.0
	PVA 224S ⁴⁾	40.0 - 48.0	87.0 - 89.0	0.4	5.0
	PVA 225	45.0 - 52.0	86.5 - 89.0	0.4	5.0
Medium hydrolysed grades	PVA CST	24.0 - 30.0	95.5 - 96.5	0.4	5.0
	PVA 613	14.5 - 18.5	92.5 - 94.5	0.4	5.0
Fully hydrolysed grades	PVA 117	25.0 - 30.0	98.0 - 99.0	0.4	5.0
	PVA 117K ⁴⁾	25.0 - 30.0	98.0 - 99.0	0.4	5.0
	PVA 117S ⁴⁾	25.0 - 30.0	98.0 - 99.0	0.4	5.0

1) of a 4 % aqueous solution at 20 °C, determined by Brookfield synchronised-motor rotary-type viscometer

2) calculated as Na₂O

3) after 3 hours' drying at 105 °C.

4) K, MB, SB: anti-foaming/defoaming grade; S: finer powder grade; H: super-hydrolysed

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- PVOH Standard plus -

Product from Germany;

	Grade	Viscosity ¹⁾ DIN 53015 [mPa x s]	Degree of hydrolysis (saponification) [mol.-%]	Max Ash content ²⁾ [%]	Max Volatile content ³⁾ [%]
Fine powder G2 grades ⁴⁾	Mowiol 4-88 G2	3.5 - 4.5	86.7 - 88.7	0.5	5.0
	Mowiol 8-88 G2	7.0 - 9.0	86.7 - 88.7	0.5	5.0
	Mowiol 18-88 G2	16.5 - 19.5	86.7 - 88.7	0.5	5.0
	Mowiol 26-88 G2	24.5 - 27.5	86.7 - 88.7	0.5	5.0
	Mowiol 47-88 G2	45.0 - 49.0	86.7 - 88.7	0.5	5.0
Low ash grades	Mowiol 4-88 low ash	3.5 - 4.5	86.7 - 88.7	0.09	5.0
	Mowiol 8-88 low ash	7.0 - 9.0	86.7 - 88.7	0.09	5.0
	Mowiol 40-88 low ash	38.0 - 42.0	86.7 - 88.7	0.09	5.0
	Mowiol 4-98 low ash	4.0 - 5.0	98.0 - 98.8	0.09	5.0
	Mowiol 56-98 low ash	52.0 - 60.0	98.0 - 98.8	0.09	5.0
	Mowiol 28-99 low ash	26.0 - 30.0	99.0 - 99.8	0.09	5.0

1) of a 4 % aqueous solution at 20 °C determined by Hoppler viscometer.

2) calculated as Na₂O

3) after 3 hours' drying at 105 °C/DIN 53189. Methanol content: less than 3 %.

4) Particle size is below 200 μm.

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- PVOH Specialties-

Melt moldable grades;

	Grade	Melt Flow Rate		Melting Temp. [°C]	Glass Transition Temp. [°C]
		2.16 kg [g/10min.]	[°C]		
Mowiflex	TC 232	< 1 (39; 21.6kg)	190 (190)	178	34
CP-polymer	CP - 4104 MI	75 - 80	230	210	55

High Viscosity / low degree of hydrolysis grades;

High viscosity / low DH grades

	Grade	Viscosity ¹⁾	Degree of hydrolysis	Max Ash content ²⁾	Max Volatile content ³⁾
		DIN 53015 [mPa × s]	(saponification) [mol.-%]	[%]	[%]
High viscosity grades	PVA 140H	(250)	> 99.7	1.0	5.0
	PVA 235	80.0 - 110.0	87.0 - 89.0	0.4	5.0
Low hydrolyzed grades	PVA 420H	29.0 - 35.0	79.0 - 81.0	0.4	5.0
	PVA 424H	45.0 - 51.0	78.5 - 80.5	0.2	5.0
	PVA 403	2.8 - 3.3	78.5 - 81.5	0.4	5.0
	PVA 405	4.5 - 5.2	80.0 - 83.0	0.4	5.0
	PVA 505	4.2 - 5.0	72.5 - 74.5	0.4	5.0
Water dispersible grades	PVA LM-20	3.0 - 4.0 ⁴⁾	38.0 - 42.0	n.a.	5.0
	PVA LM-10HD	4.5 - 5.7 ⁴⁾	38.0 - 42.0	n.a.	5.0

1) of a 4 % aqueous solution at 20 °C determined by Brookfield synchronised rotary-type viscometer.

2) calculated as Na2O

3) after 3 hours' drying at 105 °C. Methanol content: less than 3 %.

4) solvent; water / methanol = 1/1

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- PVOH Specialties-

Modified grades;

	Grade	Viscosity ¹⁾ JIS K6726 [mPa × s]	Degree of hydrolysis (saponification) [mol.-%]	Max Ash content ²⁾ [%]	Max Volatile content ³⁾ [%]
Carboxylic acid containing grades	KL-118	29.0 - 34.0	95.0 - 99.0	n.a.	n.a.
	KL-318	20.0 - 30.0	85.0 - 90.0	n.a.	5.0
	KL-506	5.2 - 6.2	74.0 - 80.0	n.a.	5.0
	SD-1000	2.3 - 3.4	83.0 - 88.0	n.a.	5.0
Cationic group containing grades	CM-318	17.0 - 27.0	86.0 - 91.0	n.a.	n.a.
Silanol containing grades	R- 1130	20.0 - 30.0	98.0 - 99.0	n.a.	5.0
	R- 2105	4.5 - 6.0	98.0 - 99.0	n.a.	n.a.
	R- 3109	9.0 - 12.0	98.0 - 99.0	n.a.	5.0

1) of a 4 % aqueous solution at 20 °C determined by Brookfield synchronised rotary-type viscometer.

2) calculated as Na₂O

3) after 3 hours' drying at 105 °C. Methanol content: less than 3 %.

EXCEVAL, water soluble ethylene-vinyl alcohol copolymer;

	Grade	Viscosity ¹⁾ DIN 53015 [mPa × s]	Degree of hydrolysis (saponification) [mol.-%]	Max Ash content ²⁾ [%]	Max Volatile content ³⁾ [%]
Super hydrolyzed grades	HR-3010	12.0 - 16.0	99.0 - 99.4	0.4	5.0
Fully hydrolyzed grades	RS-2117	23.0 - 30.0	97.5 - 99.0	0.4	5.0
	AQ-4104	3.5 - 4.5	98.0 - 99.0	0.4	5.0
Medium hydrolyzed grades	RS-1717	23.0 - 30.0	92.0 - 94.0	0.4	5.0

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2) calculated as Na₂O

3) after 3 hours' drying at 105 °C. Methanol content: less than 3 %.

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- PVOH Specialties-

PVOH for PVC polymerization;

	Grade	Viscosity ¹⁾ DIN 53015 [mPa x s]	Degree of hydrolysis (saponification) [mol.-%]	Max Ash content ²⁾ [%]	Max Volatile content ³⁾ [%]
Primary suspending agent	PVA 420H	29.0 - 35.0	79.0 - 81.0	0.4	5.0
	PVA 424H	45.0 - 51.0	78.5 - 80.5	0.2	5.0
	PVA L-8	5.0 - 6.0	69.5 - 72.5	n.a.	5.0
	PVA L-9	6.0 - 6.5	69.5 - 72.5	n.a.	5.0
	PVA L-9-78	6.0 - 6.7	76.5 - 79.0	n.a.	5.0
Secondary suspending agent (powder)	PVA LM-20	3.0 - 4.0 ⁴⁾	38.0 - 42.0	n.a.	5.0
	PVA LM-10HD	4.5 - 5.7 ⁴⁾	38.0 - 42.0	n.a.	5.0
Anti dry foam agent	ACM-3	2.8 - 3.3	n.a.	n.a.	5.0

1) of a 4 % aqueous solution at 20 °C determined by Brookfield synchronised rotary-type viscometer.

2) calculated as Na2O

3) after 3 hours' drying at 105 °C. Methanol content: less than 3 %.

4) solvent; water / methanol = 1/1

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