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Plasticizers

This Range Chart, updated to September 2007, covers our line of plasticizers:

Palatinol®
Plastomoll®
Hexamoll® und
Palamoll®

This chart includes our short-chain phthalates, Palatinol M and Palatinol A, which, though unsuitable for PVC, are important as plasticizers for coatings and cellulose moulding compounds.

All the figures quoted are intended solely as a guide and are not binding for the properties of the products that we place on the market. The definitive product specifications for our plasticizers are published in the Technical Leaflets for the individual products.

If you should have any technical problems, you can rest assured of our full cooperation in solving them.

Contact our Technical Service Plasticizers:

Tel.: +49 621 60-45045

The data given in the range chart apply to the formulation quoted. The properties of the final product can be adapted to meet specific requirements by blending it with additives such as lubricants, stabilizers and antioxidants.

The former products Palatinol 911 and Palatinol 11P-E (DUP) were substituted by the slightly improved products Palatinol 911-P and Palatinol 111P-I.

A new polymeric plasticizer, Palamoll 638, has been introduced, which is especially suitable for food contact applications.

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Product line			Product data								
Name of product	Abbreviation DIN EN ISO 1043-3	CAS number	Dyn. Viscosity at 20 °C [mPa · s] DIN 51562	Density at 20 °C [g/cm ³] DIN 51757	Refractive index n _D ²⁰ DIN 51423	Platinum- cobalt colour DIN EN ISO 6271	Acid value [mg KOH/g] DIN EN ISO 2114	Ester content [% area] GC	Water content [% by weight] DIN 51777, Part 1	Pour point [°C] DIN ISO 3016	Solution temperature (at clear point) [° C] DIN 53408 (S-PVC; K-value 71)

Palatinol® products (phthalates)

Palatinol N*	DINP	28553-12-0	68–82	0.970–0.977	1.484–1.488	≤ 30	≤ 0.06	≥ 99.5	≤ 0.05	–54	132
Palatinol 10-P*	DPHP	53306-54-0	115–130	0.960–0.965	1.482–1.485	≤ 40	≤ 0.07	≥ 99.5	≤ 0.05	–48	146
Palatinol 911-P	NUP	68515-43-5	53–63	0.952–0.964	1.479–1.485	≤ 40	≤ 0.07	≥ 99.5	≤ 0.05	app. –21**	139
Palatinol 111P-I	DUP	3648-20-2	64–69	0.950–0.954	1.480–1.484	≤ 50	≤ 0.07	≥ 99.5	≤ 0.1	app. –3**	148
Palatinol C	DBP	84-74-2	19–22	1.044–1.048	1.491–1.494	≤ 30	≤ 0.1	≥ 99.5	≤ 0.1	<–60	100
Palatinol IC	DIBP	84-69-5	40–43	1.037–1.041	1.488–1.491	≤ 30	≤ 0.1	≥ 99.5	≤ 0.1	–42	99
Palatinol K	–	117-83-9	38–43	1.058–1.061	1.485–1.487	≤ 100	≤ 0.1	≥ 98	≤ 0.1	–51	136
Palatinol M	DMP	131-11-3	16–19	1.190–1.194	1.515–1.516	≤ 10	≤ 0.04	≥ 99.5	≤ 0.1	–42**	–
Palatinol A	DEP	84-66-2	12–14	1.116–1.120	1.501–1.502	≤ 10	≤ 0.1	≥ 99.5	≤ 0.1	–60	–

Plastomoll® products (adipates)

Plastomoll DOA	DOA/DEHA	103-23-1	13–15	0.924–0.926	1.446–1.448	≤ 20	≤ 0.07	≥ 99.5	≤ 0.1	<–60	148
Plastomoll DNA	DINA	33703-08-1	17–21	0.918–0.922	1.448–1.451	≤ 40	≤ 0.07	≥ 99.5	≤ 0.1	<–60	156

Hexamoll® products (cyclohexane-1.2-dicarboxylate)

Hexamoll DINCH	–	166412-78-8	44–60	0.944–0.954	1.460–1.466	≤ 40	≤ 0.07	≥ 99.5	≤ 0.1	–54	151
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Palamoll® products (polyesters of aliphatic dicarboxylic acids)

Palamoll 632	–	55799-38-7	2000–3500	1.140–1.150	1.462–1.464	≤ 150	≤ 2	–	≤ 0.05	–16	162
Palamoll 636	–	55799-38-7	10000–13000	1.140–1.160	1.466–1.468	≤ 150	≤ 2	–	≤ 0.05	–7	170
Palamoll 638	–	82904-80-1	7000–9500	1.110–1.130	1.466–1.468	≤ 150	≤ 2	–	≤ 0.05	–9	164
Palamoll 646	–	150923-12-9	10000–13000	1.125–1.140	1.469–1.471	≤ 150	≤ 2	–	≤ 0.05	–17	162
Palamoll 652	–	208945-13-5	1800–2300	1.040–1.060	1.462–1.467	≤ 150	≤ 1.5	–	≤ 0.05	–25	149
Palamoll 654	–	208945-12-4	4500–5500	1.070–1.085	1.468–1.470	≤ 150	≤ 1.5	–	≤ 0.05	–18	150
Palamoll 656	–	208945-12-4	10000–13000	1.085–1.105	1.469–1.472	≤ 150	≤ 1.5	–	≤ 0.05	–10	154
Palamoll 858	–	208945-11-3	4500–5500	1.050–1.065	1.464–1.467	≤ 150	≤ 1.5	–	≤ 0.05	–20	151

* These products can also be supplied in a form stabilized with 0.5% Bisphenol A.

** With seed crystals,
crystallisation may start
earlier.

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Product line			Properties of plasticized PVC***								
Name of product	Abbreviation DIN EN ISO 1043-3	CAS number	Tensile stress at break (σ_B) [MPa] DIN EN ISO 527, Part 1; 3 (23 °C)	Tensile strain at break (ϵ_B) [%] DIN EN ISO 527, Part 1; 3 (23 °C)	100 % modulus (σ_{100}) [MPa] DIN EN ISO 527, Part 1; 3 (23 °C)	Brittleness temperature [°C] BASF-Method similar to former DIN 53372	Torsional stiffness (at 310 N/mm ²) [°C] DIN 53447	Shore A Hardness DIN EN ISO 868 23 °C, 7 d conditioned	Efficiency Factors at Shore A = 75 DOP = 1	Volatility [approx. %] after 24 h at 130° C BASF Method	Volume resistivity at 25° C**** [$\Omega \cdot \text{cm}$] DIN IEC 60093

Palatinol® products (phthalates)

Palatinol N*	DINP	28553-12-0	17.5	370	6.0	-42	-40	73	1.06	1.3	4.30E+12
Palatinol 10-P*	DPHP	53306-54-0	18	360	6.8	-35	-38	77	1.14	1.2	5.90E+12
Palatinol 911-P	NUP	68515-43-5	17	370	6.3	-46	-	76	1.12	0.5	4.60E+11
Palatinol 111P-I	DUP	3648-20-2	17	360	6.7	-51	-53	79	1.20	0.5	8.30E+11
Palatinol C	DBP	84-74-2	14.5	380	3.9	-37	-41	63	0.81	35	-
Palatinol IC	DIBP	84-69-5	16	320	4.9	-17	-20	66	0.90	34	-
Palatinol K	-	117-83-9	18	360	5.5	-37	-41	69	0.93	3.7	-
Palatinol M	DMP	131-11-3									
Palatinol A	DEP	84-66-2									

Plastomoll® products (adipates)

Plastomoll DOA	DOA/DEHA	103-23-1	14.5	400	4.7	-67	-70	69	0.95	10	8.10E+10
Plastomoll DNA	DINA	33703-08-1	14	380	5.3	-71	-71	72	1.04	3	1.30E+11

Hexamoll® products (cyclohexane-1.2-dicarboxylate)

Hexamoll DINCH	-	166412-78-8	17	360	6.4	-43	-44	72	1.11	2.4	7.20E+11
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Palamoll® products (polyesters of aliphatic dicarboxylic acids)

Palamoll 632	-	55799-38-7	22.5	360	8.1	-22	-19	72	1.24	1	-
Palamoll 636	-	55799-38-7	23	335	9.5	-17	-17	82	1.30	1	-
Palamoll 638	-	82904-80-1	23	360	8.7	-14	-	80	1.24	0.6	-
Palamoll 646	-	150923-12-9	22	360	7.6	-24	-20	77	1.15	0.6	-
Palamoll 652	-	208945-13-5	20	360	6.6	-20	-18	75	1.10	0.7	2.10E+11
Palamoll 654	-	208945-12-4	20	360	6.9	-21	-20	75	1.09	0.6	2.00E+12
Palamoll 656	-	208945-12-4	21	360	7.4	-21	-18	6	1.12	0.5	2.80E+12
Palamoll 858	-	208945-11-3	21.5	360	7.5	-17	-15	77	1.14	0.6	1.10E+13

* These products can also be supplied in a form stabilized with 0.5% Bisphenol A.

*** Plasticized PVC formulation
Solvin® 271 SP 100
Plasticizer 67
Ba-Zn stabilizer (liquid) 2

**** The values were measured in
plasticized PVC film stabilized
with lead stearate (28% Pb)
and tribasic lead sulfate

**BASF Technical Service Plasticizers
Testmethods and equipment**

Test Capability	Test Method	Instrument Model	Testing Description
Viscosity	DIN 51562 DIN EN ISO 3219	Schott AVSN Physica Rheolab MC 20	Ubbelohde-Viscometer Rotational Viscometer
Density	DIN 51757	Paar DMA 48 Dig. Density Meter	Mechanical Oscillator
Refractive index	DIN 51423	Atago/Kuebler	Abbe-Refractometer
Platinum-cobalt colour	DIN EN ISO 6271	Lange Lico 400	Comparison with platinum-cobalt standards
Ester content	BASF-Method	Gas chromatography	FID-Detector
Water content	DIN 51777, Part 1	Metrohm E 547 K.F. Titrator	Direct determination
Pour point	DIN ISO 3016		
Solution temperature clear point	DIN 53408	Leitz Microscope, Mettler Heating-Unit	5 % S-PVC, K-value 71 in plasticizer
Mechanical properties	DIN EN ISO 527, Part 1 and 3	Zwicki TMZ 2.5	23 °C, 0.5 mm pressed plaques Clamp speed 100 mm/min
Brittleness temperature	BASF-Method	Heraeus Voetsch test-chamber	Falling weight method
Torsional stiffness	DIN 53447	CEAST Torque meter „Clash & Berg“	Temperature at 310 N/mm ² , 1.5 mm thick test specimen
Shore hardness	DIN EN ISO 868	Hildebrand Digital Durometer	10 mm test specimen, readings 15 seconds
Volatility	BASF-Method	Heraeus-oven, controlled air flow with rotating rack	24 h at 130 °C, approx. 18 airchanges per h
Volume resistivity	DIN IEC 60093	Tera-Ohmmeter DIPATO 4	0.5 mm pressed plaques at 25 °C

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

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