

# Plasticizers

This Range Chart covers our plasticizer brands:

**Palatinol®**  
**Plastomoll®**  
**Hexamoll®**  
**Palamoll®**

This chart includes our short-chain phthalate, Palatinol® M, which, though unsuitable for PVC, is important as plasticizer 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 Information" 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:

E-Mail: [plasticizers.europe@basf.com](mailto:plasticizers.europe@basf.com)

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.

Product line		Product data										
Name of product	Abbreviation DIN EN ISO 1043-3	CAS number	Dyn. Viscosity 20 °C [mPa · s] ASTM D 7042 DIN 53019	Density at 20 °C [g/cm <sup>3</sup> ] DIN 51757	Refractive index $n_D^{20}$ DIN 51423-2	Pt/Co colour DIN EN ISO 6271	Acid value [mg KOH/g] DIN EN ISO 2114	Ester content [% area] GC	Water content [% weight] DIN 51777, Part 1	Pour point [°C] DIN ISO 3016	Solution temp. [°C] DIN 53408	Solution temp. [°C] rheological BASF method
<b>Palatinol® products (phthalates)</b>												
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	124
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	137
Palatinol® M	DMP	131-11-3	16 – 19	1.190 – 1.194	1.515 – 1.516	≤ 10	≤ 0.04	≥ 99.5	≤ 0.1	-42**	-	-
<b>Plastomoll® products (adipates)</b>												
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	134
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	145
<b>Hexamoll® products (cyclohexane-1,2-dicarboxylate)</b>												
Hexamoll® DINCH	-	166412-78-8 474919-59-0	44 – 60	0.944 – 0.954	1.460 – 1.466	≤ 40	≤ 0.07	≥ 99.5	≤ 0.1	-54	151	140
<b>Palamoll® products (polyesters of aliphatic dicarboxylic acids)</b>												
Palamoll® 632	-	55799-38-7	2000 – 3500	1.140 – 1.150	1.462 – 1.464	≤ 150	≤ 2	-	≤ 0.05	-16	162	155
Palamoll® 638	-	82904-80-1	7000 – 9500	1.110 – 1.130	1.466 – 1.468	≤ 150	≤ 2	-	≤ 0.05	-9	164	158
Palamoll® 646	-	150923-12-9	10000 – 13000	1.125 – 1.140	1.469 – 1.471	≤ 150	≤ 2	-	≤ 0.05	-17	162	151
Palamoll® 652	-	208945-13-5	1800 – 2300	1.040 – 1.060	1.462 – 1.467	≤ 150	≤ 1.5	-	≤ 0.05	-25	149	142
Palamoll® 654	-	208945-12-4	4500 – 5500	1.070 – 1.085	1.468 – 1.470	≤ 150	≤ 1.5	-	≤ 0.05	-18	150	142
Palamoll® 656	-	208945-12-4	10000 – 13000	1.085 – 1.105	1.469 – 1.472	≤ 150	≤ 1.5	-	≤ 0.05	-10	154	145

\* This product can also be supplied in a form stabilized with 0.25 % Irganox® 1010.

\*\* With seed crystals, crystallization may start earlier.

**Product line** Properties of plasticized PVC\*\*\*

Name of product	Abbreviation DIN EN ISO 1043-3	CAS number	Tensile stress at break ( $\sigma_B$ ) [MPa] DIN EN ISO 527, Part 1; 3 (23 °C)	Tensile strain at break ( $\epsilon_B$ ) [%] DIN EN ISO 527, Part 1; 3 (23 °C)	100 % modulus ( $\sigma_{100}$ ) [MPa] DIN EN ISO 527, Part 1; 3 (23 °C)	Brittleness temperature [°C] BASF- Method similar to former DIN 53372	DMA, T <sub>g</sub> [°C] at Max. Loss Modulus G'' ISO 6721-7	Shore A Hardness DIN EN ISO 868 23 °C, 7 d conditioned	Efficiency Factors at Shore A = 75 DOP = 1	Volatility [%] after 24 h at 130 °C BASF Method
<b>Palatino® products</b> (phthalates)										
Palatino® N	DINP	28553-12-0	17.5	370	6.0	-42	-40	73	1.06	1.3
Palatino® 10-P*	DPHP	53306-54-0	18	360	6.8	-35	-39	77	1.14	1.2
<b>Plastomoll® products</b> (adipates)										
Plastomoll® DOA	DOA/DEHA	103-23-1	14.5	400	4.7	-67	-70	69	0.95	10
Plastomoll® DNA	DINA	33703-08-1	14	380	5.3	-71	-72	72	1.04	3
<b>Hexamoll® products</b> (cyclohexane-1,2-dicarboxylate)										
Hexamoll® DINCH	-	166412-78-8 474919-59-0	17	360	6.4	-43	-45	75	1.11	2.4
<b>Palamoll® products</b> (polyesters of aliphatic dicarboxylic acids)										
Palamoll® 632	-	55799-38-7	22.5	360	8.1	-22	-17	80	1.24	1
Palamoll® 638	-	82904-80-1	23	360	8.7	-14	-13	80	1.24	0.6
Palamoll® 646	-	150923-12-9	22	360	7.6	-24	-16	77	1.15	0.6
Palamoll® 652	-	208945-13-5	20	360	6.6	-20	-17	75	1.10	0.7
Palamoll® 654	-	208945-12-4	20	360	6.9	-21	-16	75	1.09	0.6
Palamoll® 656	-	208945-12-4	21	360	7.4	-21	-12	76	1.12	0.5

\* This product can also be supplied in a form stabilized with 0.25 % Irganox® 1010.

\*\*\* Plasticized PVC formulation

PVC 100 phr Inovyn™ 271 PC (Inovyn™ is a trademark of Inovyn ChlorVinyls Ltd)

Plasticizer 67 phr

Stabilizer 2 phr Reagens SLX/781; liquid Ba/Zn stabilizer

<b>Test Capability</b>	<b>Test Method</b>	<b>Instrument Model</b>	<b>Testing Description</b>
Viscosity	ASTM D 7042	Anton Paar	Stabinger Viscometer
	DIN 53019	Anton Paar	MCR 101 Rheometer
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
Acid value	DIN EN ISO 2114	Metrohm Titrande	Direct titration
Solution temperature at clear point	DIN 53408	Leitz Microscope, Mettler Heating-Unit	5 % S-PVC, K-value 71 in plasticizer
Mechanical properties	BASF-Method	Anton Paar	MCR 302 Rheometer
	DIN EN ISO 527, Part 1 and 3	Zwick BZ2.5/TH1S	23 °C, 0.5 mm pressed plaques Clamp speed 100 mm/min
Brittleness temperature	BASF-Method	Heraeus Voetsch test-chamber	Falling weight method
Dynamic mechanical analysis	ISO 6721-7	Rheometrics RDA 2	Temperature at + 20 °C to -100 °C, 40 x 20 x 0.5 mm test specimen, Frequency 1 Hz
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

**ChemCycling™: plasticizer portfolio**

ChemCycling™ is the name of a chemical recycling project launched by BASF with the aim to manufacture products from chemically recycled plastic waste on an industrial scale. BASF cooperates with technology partners, who use a thermochemical process called pyrolysis to transform plastic waste into secondary raw material (pyrolysis oil). This oil is fed into BASF's production network (Verbund) at the beginning of the value chain, thereby saving fossil resources and contributing to plastic waste recycling. The share of recycled material is allocated to products manufactured in the Verbund by using a third-party audited mass balance approach.

The resulting products which carry the name suffix "Cycled™" have the exact same properties as those manufactured from fossil feedstock. Our customers can therefore further process them in the same way as conventionally manufactured products and use them in demanding applications.



The following products from the plasticizer portfolio are also available as CCycled™ products:

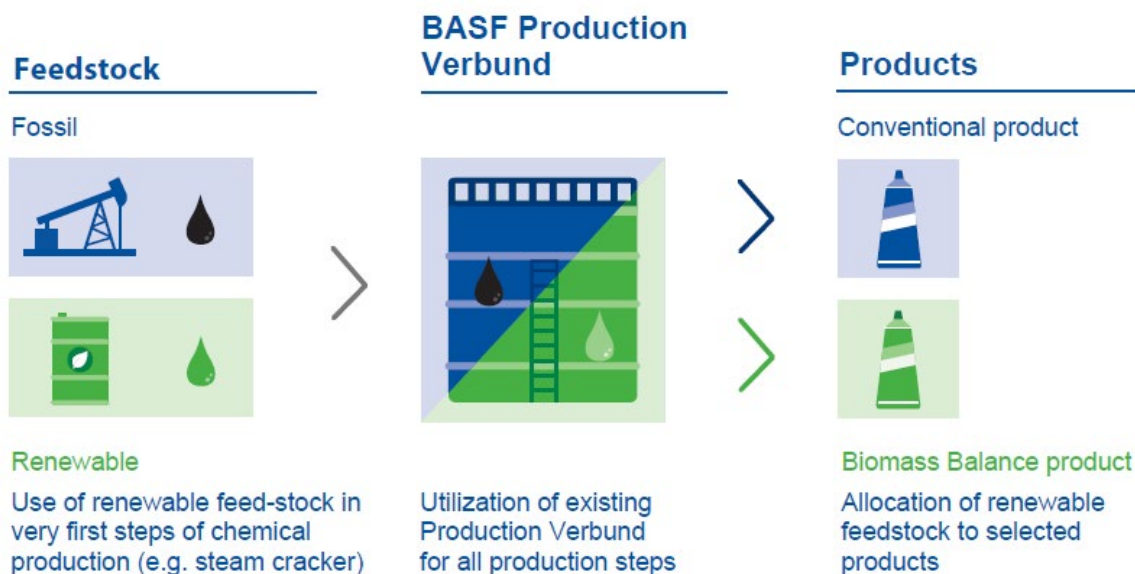
Product name	Description
Hexamol® DINCH – Cycled™ post C1	based on pyrolysis oil from mixed plastic waste
Hexamol® DINCH – Cycled™ post C2	based on pyrolysis oil from end-of-life tires

The technical and chemical properties, mentioned in this range chart, remain unchanged for the CCycled™ products.

**Biomass Balance: plasticizer portfolio**

BASF’s Biomass Balance Approach contributes to the use of renewable raw materials in its integrated production system. In this process, renewable resources, such as bio-naphtha or bio-methane derived from organic waste or vegetable oils, are used as feedstock at the very beginning of the Production Verbund and are allocated to the respective sales products using a third party verified mass balance approach. The certified products thus contribute to sustainable development by reducing greenhouse gas emissions and saving fossil resources.

The resulting products which carry the name suffix “BMB” have the exact same properties as those manufactured from fossil feedstock. Our customers can therefore further process them in the same way as conventionally manufactured products and use them in demanding applications.



The following products from the plasticizer portfolio are also available as biomass balanced products:

Product name
Hexamol® DINCH BMB
Palatino® 10-P BMB
Palatino® N BMB
Plastomoll® DOA BMB

The technical and chemical properties, mentioned in this range chart, remain unchanged for the biomass balanced products.

**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.

December 2020

