

가소제/Plasticizers

Item	Formula	Molecular Weight	Color (APHA)	Sp. Gravity (20/20°C)	Ester Value (KOH, mg/g)	Refractive Index (nD25)	Acid Value (KOH, mg/g)	Heating Loss (%)(125°Cx3hrs)	Acid Value after Heating (KOH, mg/g)(125°Cx3hrs)	Volume Resistivity (Ω.cm)	Feature	Use
DOP	C <sub>24</sub> H <sub>38</sub> O <sub>4</sub>	390	Less than 30	0.986±0.003	287±3	1.485±0.003	Less than 0.03	Less than 0.10	Less than 0.15	Over 2.0X10 <sup>11</sup>	- Resin과의 상용성이 우수하며 내한성, 내열성, 내광성, 내약품성, 투명성이 양호 - Highly compatible with resin. High cold-resistance, thermal-resistance, chemical-resistance and transparency. - 점도 가용범위가 넓고 점도안정성이 우수 - Wide range of viscosity and highly stable viscosity.	Film, Sheet, Leather, 상재, 벽지, 전선, Paste가공, 범용, Tarpaulin For film, sheet, leather, floor material, wall paper, electric cable, paste processing and tarpaulin
DINP	C <sub>26</sub> H <sub>42</sub> O <sub>4</sub>	419	Less than 30	0.975±0.003	267±3	1.485±0.003	Less than 0.03	Less than 0.10	Less than 0.15	Over 2.0X10 <sup>11</sup>	- 전기절연성이 우수하고, 내한성, 내열성, 내광성이 우수 - High electric-insulation, cold-resistance, thermal-resistance, glare-resistance.	Film, Sheet, Leather, 상재, 벽지, 전선, Paste가공 For film, sheet, leather, floor material, wall paper, electric cable and paste processing
DOA	C <sub>22</sub> H <sub>42</sub> O <sub>4</sub>	370	Less than 30	0.927±0.003	304±3	1.448±0.003	Less than 0.03	Less than 0.10	Less than 0.15	Over 2.0X10 <sup>11</sup>	- 내한성 표준가소제로 내한성, 내광성이 우수 - Cold-resistant standard plasticizer. High cold-resistance, glare-resistance. - 점도안정성이 양호하며 압출 및 CALENDER 가공 시 활성을 부여함 - High viscosity stability. Provides active result for extrusion and CALENDER processes.	농업용 Film, Sheet, Leather, Rain coat, 포장 Film, Paste가공 For agricultural film, sheet, leather, rain coat, package film and paste processing
DIDP	C <sub>28</sub> H <sub>46</sub> O <sub>4</sub>	447	Less than 30	0.968±0.003	251±3	1.483±0.003	Less than 0.03	Less than 0.10	Less than 0.15	Over 2.0X10 <sup>11</sup>	- 가소제 중 내취발성이 가장 우수 - Highest volatile-resistance among plasticizers - 내한성, 내후성, 내 이행성, 전기절연성이 양호하며 Sol의 점도 안정성이 우수 - High viscosity stability of SOL due to excellent cold-resistance, weather-proof, transitive-resistance and electric insulation.	자동차용 고급 Leather, 전선 Cable, 특수제품 For leather of luxury cars, electric cable and special material
HCCFlex SP-390	C <sub>24</sub> H <sub>38</sub> O <sub>4</sub>	390	Less than 30	0.984±0.003	-	1.487±0.003	Less than 0.03	Less than 0.10	Less than 0.15	Over 2.0X10 <sup>11</sup>	- Non-phthalate 가소제로서 DOP, DINP의 대체 사용이 가능 - As a non-phthalate plasticizer, it can replace DOP and DINP.	Film, Sheet, Leather, 상재, 벽지, 전선, Tarpaulin, paste 가공 For film, sheet, leather, floor material, wall paper, electric cable, tarpaulin and paste

가소제 물리적 특성 비교/Physical characteristic comparison of plasticizer

Item	Molecular Weight	Plasticizing Efficiency	Sp. Gravity (20/20°C)	Viscosity (cp@25°C)	Cold Shock (LTB, °C)	Freezing Point (°C)	Boiling Point (°C)	Water Solubility (µg/L)	Vapor Press (mmHg)
DOP	390	1.00	0.984	57	-25.3	-55	385	334(25°C)	1.2(200°C)
DINP	419	1.06	0.973	62	-23.8	-48	400	200(20°C)	-
DIDP	447	1.10	0.966	130	-24.1	-48	400	0.2(20°C)	-
HCCFlex SP-390	390	1.04	0.984	63	-29.0	-48	400	350(25°C)	1.0(217°C)

알코올/Alcohols

Item	Chemical Name	Molecular Formula	Molecular Weight	Purity (wt%)	Aldehyde (wt%)	H <sub>2</sub> O (wt%)	Color (APHA)	Acid-No (mgKOH/g)	Sulfuric Acid Color (APHA)	Density (g/cm <sup>3</sup> )	Use
2-EH	2-Ethylhexanol	C <sub>8</sub> H <sub>18</sub> O	130.23	Min. 99.7	Max. 0.05	Max. 0.05	Max. 10	Max. 0.05	Max. 20	0.832~0.834	가소제, 안정제, 용제, 아크릴레이트 등의 원료로 사용 To be used as raw material for plasticizer, stabilizer, solvent and acrylate
N-BuOH	Normal-Butanol	C <sub>4</sub> H <sub>10</sub> O	74.12	Min. 99.7	Max. 0.05	Max. 0.05	Max. 10	Max. 0.02	Max. 15	0.810~0.812	용제, 접착제, 세제, 가소제, 아크릴레이트 등의 원료로 사용 To be used as raw material for solvent, glue, detergent, plasticizer and acrylate
I-BuOH	Iso-Butanol	C <sub>4</sub> H <sub>10</sub> O	74.12	Min. 99.7	Max. 0.05	Max. 0.10	Max. 10	Max. 0.02	-	0.802~0.804	용제, 아미노수지, 가소제 등 To be used as raw material for solvent, amino resin and plasticizer

PA/MA

Item	Chemical Name	Molecular Formula	Molecular Weight	Appearance	Hazen Color (APHA)	Heating Color (APHA)	Solidification Point (°C)	Purity (wt%)	Use
PA(Molten)	Phthalic Anhydride	C <sub>8</sub> H <sub>4</sub> O <sub>3</sub>	148.12	-	Max. 20	Max. 30	Min. 130.8	Min. 99.85	가소제, 폴리에스테르, 접착제, 안료, 페인트 등의 용도로 사용 To be used for plasticizer, polyester, glue, paint and pigment
PA(Flake)	Phthalic Anhydride	C <sub>8</sub> H <sub>4</sub> O <sub>3</sub>	148.12	White flake	Max. 20	Max. 30	Min. 130.8	Min. 99.85	
MA(Molten)	Maleic Anhydride	C <sub>4</sub> H <sub>2</sub> O <sub>3</sub>	98.06	-	Max. 20	Max. 40	Min. 52.4	Min. 99.7	
MA(Pastille)	Maleic Anhydride	C <sub>4</sub> H <sub>2</sub> O <sub>3</sub>	98.06	White pastille	Max. 20	Max. 40	Min. 52.4	Min. 99.7	불포화 폴리에스테르, 접착제, 페인트, 락커 등의 제조에 사용 To be used for producing unsaturated polyester, glue, paint and lacquer

| 포장/Package |

Plasticizers : Drum(200L), Tank Lorry  
Alcohols : Tank Lorry  
PA/MA : Paper bag(25kg), Felcon bag(500/600kg), Tank Lorry

| 저장/Storage |

Plasticizers, Alcohols, PA/MA : 햇빛이 들지 않는 서늘한 곳에 보관하며, 물기와 접촉을 피할 수 있는 지정된 장소에 보관해야 합니다.  
Store the plasticizer drum in a cool room. Avoid direct sunlight and humidity. Store it in a designated place.

이 카탈로그에 실려있는 Data 및 기술정보사항은 한화케미칼과 협력업체의 종합적 경험 및 가소제 Sample의 실험적 Test 결과를 기초로 작성하였으며 실제 적용시 참고용 자료로 사용할 수 있습니다.

The data and technical information in this catalog are based on the experience and knowledge of Hanhwa Chemical and its subcontractors as well as the results of tests for plasticizer samples.

Plasticizers

Test Method

- Color : JIS K 6751
- Sp. Gravity : JIS K 6751
- Ester Value : JIS K 6751
- Refractive Index : JIS K 6751
- Acid Value : JIS K 6751
- Heating Loss : JIS K 6751
- Acid Value after Heating : JIS K 6751
- Volume Resistivity : JIS K 6751

Alcohols

Test Method

- Purity : HCC Method(GC)
- Aldehyde : HCC Method
- H<sub>2</sub>O : HCC Method
- Color : HCC Method
- Acid-No : HCC Method
- Sulfuric Acid Color : HCC Method
- Density : HCC Method

PA/MA

Test Method

- Hazen Color : ASTM D 3366
- Heating Color : ASTM D 3366
- Solidification Temperature : ASTM D 1493
- Purity : HCC Method(LC)