

# PRODUCTLIST

## 1 PERFORMANCE CHEMICALS FOR SYNTHETIC RESIN & RUBBER INDUSTRIES AND PAINT, INK & PIGMENT INDUSTRIES

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3. Emulsifiers for Emulsion Polymerization
4. Stabilizer for Emulsions and Latexes
5. Resin Modifiers
6. Internal Antistatic Agents
7. Mold Releasing Agents
8. Printing Ink Binders
9. Compounding Ingredients for Paints and Printing Inks
10. Polyurethane Coating Materials
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12. Defoaming Agents
13. Plasticizer for Polyurethane-Based Sealant

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## 3 PERFORMANCE CHEMICALS FOR POLYURETHANE AND POLYURETHANE-RELATED INDUSTRIES

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- Polymer Flocculants

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# 3

## PERFORMANCE CHEMICALS FOR POLYURETHANE AND POLYURETHANE-RELATED INDUSTRIES

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### IMPORTANT :

Before handling these products, refer to the current Material Safety Data Sheet for recommended protective equipment, and detailed precautionary and hazards information.

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## 1. Polyether Polyols for Flexible Slabstock Polyurethane Foams

Product Name	Principal Component (Product form)	Hydroxyl Value	Viscosity mPa·s (25°C)	pH	Uses and Features
<b>SANNIX GP-3000</b> <b>GP-3000V</b>	Polyoxypropylene triol (Liquid)	56	500	6.5	These products are standard polyols, used most widely to produce flexible polyurethane foams for general uses. They are used in slab-stock and molded foams. The resulting foam has well-balanced mechanical properties.
		56	510	6.5	
<b>SANNIX GP-3030</b> <b>GP-3050V</b>	Polyoxyalkylene triol (Liquid)	55	480	6.5	These products are polyols with high reactivity and a wide tolerance to catalyst levels. Furthermore, they are suitable for the MAX FOAM process, because they cause less scorching.
		56	500	6.5	
<b>SANNIX GP-3700M</b>	Polyoxyalkylene triol (Liquid)	45	650	6.5	SANNIX GP-3700M is a polyol for producing flexible polyurethane foams with superior elongation qualities. It is particularly suitable for producing foams for furniture cushions, and foams for textile laminates.
<b>SANNIX FA-103</b>	Polyoxyalkylene polyol (Liquid)	50	730	6.5	When SANNIX FA-103 is used in combination with SANNIX GP-3700M, the resulting foam is suitable for bedspreads and quilted garments. It is also useful to produce hydrophilic polyurethane foams.
<b>SHARPFLOW FS-7301</b>	Polyoxyalkylene polyol based polymer polyol (Liquid)	31	5,400	7.0	SHARPFLOW FS-7301 is a polymer polyol for producing flexible polyurethane foams. It has the ability to produce a wide range of hardness, when it is mixed in different proportions with general-purpose polyether polyol.
<b>SANNIX FA-703</b> <b>FA-921</b> <b>KC-714</b>	Polyoxyalkylene polyol (Liquid)	33	910	6.5	These products are polyols and polymer polyols for producing high-resilient flexible polyurethane foams with high hardness. They are used with polyether polyols.
		28	1,160	6.5	
		31	1,270	6.5	
<b>SANNIX KC-900</b> <b>ULTIFLOW FM-5704</b>	Polyoxyalkylene polyol based polymer polyol (Liquid)	22	4,800	7.5	
		25	3,400	7.5	

## 2. Polyether Polyols for Automobile Hot Molded Seat Cushions

Product Name	Principal Component (Product form)	Hydroxyl Value	Viscosity mPa·s (25°C)	pH	Uses and Features
<b>SANNIX GL-3000</b>	Polyoxyalkylene triol (Liquid)	54	510	6.5	SANNIX GL-3000 is a polyol with fairly high reactivity. It is used in combination with SANNIX GP-3000.
<b>SANNIX FA-226</b>	Polyoxyalkylene polyol (Liquid)	60	450	6.5	SANNIX FA-226 is a polyol with good curing efficiency and a wide tolerance to tin catalyst levels. It is particularly suitable for producing flexible polyurethane foams with low hardness.

## 3. Polyether Polyols for Automobile High-Resilient Molded Seat Cushions

Product Name	Principal Component (Product form)	Hydroxyl Value	Viscosity mPa·s (25°C)	pH	Uses and Features
<b>SANNIX FA-702</b> <b>FA-703</b> <b>KC-229</b> <b>KC-720</b> <b>KC-745</b>	Polyoxyalkylene polyol (Liquid)	38	900	6.5	These products are highly reactive polyols suitable for cold-molding of flexible polyurethane foams. The reaction of these polyols with crude MDI, or a blend of crude MDI and TDI-80, results in high-resilient flexible polyurethane foams with an open cell structure, high SAG factor, and low hysteresis loss. The resulting foam is particularly suitable as cushioning materials for automobile seats, motorcycle saddles, and furniture.
		33	910	6.5	
		36	840	6.5	
		34	880	6.5	
		34	900	6.5	
<b>SANNIX FA-908</b>	Polyoxyalkylene polyol (Liquid)	24	1,400	6.5	SANNIX FA-908 is a polyol particularly suitable for automobile cushioning that needs high ball rebound characteristics.
<b>SANNIX FA-757</b> <b>KC-714</b>	Polyoxyalkylene polyol (Liquid)	32	1,100	6.5	These products are special polyols effective to increase durability compared with regular polyols such as SANNIX FA-703 and SANNIX KC-229. They are particularly suitable for automobile cushions.
		31	1,270	6.5	
<b>SANNIX FA-921</b>	Polyoxyalkylene polyol (Liquid)	28	1,160	6.5	SANNIX FA-921 is a special highly reactive polyol that produces significantly softer than regular polyols such as SANNIX FA-703 and SANNIX KC-229.
<b>SANNIX FA-728R</b> <b>KC-900</b> <b>ULTIFLOW FM-5704</b>	Polyoxyalkylene polyol based polymer polyol (Liquid)	27.5	2,630	8.0	These products are special polymer polyols effective to increase hardness. The desired hardness ranging from very hard to extra hard can be achieved by blending these polymer polyols with standard polyols such as SANNIX FA-703 and SANNIX KC-229, to produce flexible polyurethane molded foams. They are also effective to increase breathability of foams. SANNIX FA-728R is superior in this effect.
		22	4,800	7.5	
		25	3,400	7.5	

## 4-(1). Polyether Polyols for Crushpad Foams

The following polyols are used for producing energy-absorbing semi-flexible car trims such as crushpads, arm rests, head rests, sun visors and steering wheels. Each polyol has specific advantages as shown below.

Product Name	Principal Component (Product form)	Hydroxyl Value	Viscosity mPa·s (25°C)	pH	Uses and Features
<b>SANNIX FA-703</b>	Polyoxyalkylene polyol (Liquid)	33	910	6.5	SANNIX FA-703 offers semi-flexible polyurethane foams with well-balanced mechanical properties. It is suitable for producing steering wheels.
<b>SANNIX FA-7030</b>	Polyoxyalkylene polyol (Liquid)	28	1,300	10.0	SANNIX FA-7030 is a special polyol with high reactivity containing nitrogen and primary hydroxyl groups. It offers softer semi-flexible polyurethane foams than SANNIX FA-703. The resulting foam has good breathability. SANNIX FA-7030 exhibits excellent effects to reduce the formation of closed cells and shrinkage after molding.

#### 4-(2). Polyether Polyols for Crushpad Foams

Product Name	Principal Component (Product form)	Hydroxyl Value	Viscosity mPa·s (25°C)	pH	Uses and Features
<b>SANNIX FA-718</b>	Polyoxyalkylene	29	800	6.0	These products are special polyols with high reactivity suitable for producing semi-flexible polyurethane foams by means of cold-molding. It exhibits good flowability into molds for foaming mixtures. SANNIX FA-722 offers harder semi-flexible foams than SANNIX FA-718.
<b>FA-722</b>	polyol (Liquid)	55	750	6.0	

#### 5. Polyether Polyols for Rigid Polyurethane Foams

Product Name	Principal Component (Product form)	Hydroxyl Value	Viscosity mPa·s (25°C)	pH	Uses and Features
<b>SANNIX HS-209</b>	Modified sucrose-based polyoxypropylene polyol (Liquid)	450	6,000	10.5	These products are standard polyether polyols with low viscosity. They are used for rigid polyurethane foams generally. The resulting foam has well-balanced mechanical properties.
<b>HS-211</b>		380	1,590	8.0	
<b>SANNIX HD-402</b>	Polyoxypropylene polyol (Liquid)	404	1,800	6.0	SANNIX HD-402 is a special polyol for producing high density rigid foams with excellent mechanical properties and high thermal stability. It is suitable for producing chemical boards having complicated shapes such as for two dimensional sculptures, arts and crafts, etc.
<b>SANNIX NP-300</b>	Hydroxypropylated ethylenediamine (Liquid)	755	50,000	11.5	These products are polyfunctional polyols that catalyze the synthesis-reaction of isocyanates to polyols. The resulting foam excels in dimensional stability and compressive strength, and shows less shrinkage. It is suitable for producing semi-flexible or rigid foams, particularly for spray foaming or pour-in-place molding for rigid foams. SANNIX NP-400 shows higher cross-linking density than SANNIX NP-300. SANNIX NL-300 and SANNIX NL-500 have lower viscosity.
<b>SANNIX NE-240</b>	Hydroxyalkylated ethylenediamine (Liquid)	980	3,700	11.5	
<b>NL-300</b>		745	4,500	13.0	

#### 6. Polyfunctional Polyols

Product Name	Principal Component (Product form)	Hydroxyl Value	Viscosity mPa·s (25°C)	pH	Uses and Features
<b>SANNIX CA-203</b>	Polyoxypropylene polyol (Liquid)	580	8,500	8.0	These product are blended with polymer polyols for slab stock semi-flexible polyurethane foams by means of a one shot process. It is effective to achieve open cell structure and produces foams with improved elasticity and less shrinkage. The resulting semi-flexible foam is particularly suitable for producing automobile trims and furniture.
<b>SP-750</b>		490	24,000	6.5	
<b>SANNIX CA-204</b>	Polyoxypropylene polyol (Liquid)	790	32,500	8.0	SANNIX CA-204 is a polyfunctional polyol particularly suitable for producing flexible or semi-flexible polyurethane foams with excellent foam breathability.

#### 7. Example of Polyurethane Foam System

Product Name	Principal Component (Product form)	Hydroxyl Value	Viscosity mPa·s (25°C)	NCO %	Uses and Features
<b>SANFOAM RC-1026/IC-559</b>	RC-1026 : Polyols IC-559 : Isocyanate (And any Liquid)	49 —	1,700 5	— 45	SANFOAM RC-1026/SANFOAM IC-559 is a flexible polyurethane foam system. Foam pieces (foam density : approx. 45 kg/m <sup>3</sup> ), suitable for cushioning materials for vehicles, can be obtained by simple mixing of RC-1026 and IC-559. The foam hardness (25%ILD) is adjustable from 120 to 220 N by the change of the mixing ratio.

#### 8. Polyether Polyols for CASE\*

Product Name	Principal Component (Product form)	Hydroxyl Value	Viscosity mPa·s (25°C)	pH	Uses and Features
<b>SANNIX PP-400</b>	Polyoxypropylene diol (Liquid)	280	70	6.0	Each of the product numbers that are written next to SANNIX PP as product names indicates its approx. number-average molecular weight. They are mainly used as raw materials for polyurethane resins.
<b>PP-1000NS</b>		110	150	6.5	
<b>PP-2000</b>		56	310	6.5	
<b>PP-3000</b>		35	590	6.5	
<b>PP-4000</b>	27	990	6.5		
<b>SANNIX GH-3000NS</b>	Polyoxypropylene triol (Liquid)	56	490	6.5	Each of the product numbers that are written next to SANNIX GH as product names indicates its approx. number-average molecular weight. They are mainly used as raw materials for polyurethane resins.
<b>GH-4000NS</b>		42	670	6.5	
<b>GH-5000NS</b>		33	900	6.5	
<b>SANNIX FA-961</b>	Polyoxyalkylene polyol (Liquid)	25	1,400	6.5	SANNIX FA-961 has higher reactivity than the above SANNIX PP products.

\* Casting, Adhesion, Sealant and Elastomers

#### 9. Prepolymers and Raw Materials for Polyurethane Elastomers

Product Name	Principal Component (Product form)	NCO %	Viscosity mPa·s (25°C)	Shore-A (-D)	Uses and Features
<b>SANPRENE P-664</b>	Polyether-based polyurethane pre polymer (Solid)	4.2	930	90	These prepolymers produce hard, tough polyurethane elastomers by cross-linking with 3,3'-dichloro-4,4'-diamino di phenylmethane (MOCA) [Shore-A hardness : 90 (P-664), 96 (P-665). Shore-D hardness : 71 (P-667), 80 (P-668)]. The resulting elastomers have excellent abrasion, water and low-temperature resistances.
<b>P-665</b>		6.2	410	96	
<b>P-667</b>		9.3	300	(71)	
<b>P-868</b>		9.5	1,350	(80)	
<b>SANPRENE P-7315</b>	Polyether-based polyurethane pre polymer (Solid)	6.3	1,600	—	SANNIX P-7315 produces a tough polyurethane elastomer by cross-linking with monomeric polyols such as 1,4-butanediol, and trimethylol propane. The resulting elastomer has excellent abrasion, oil and solvent resistances.

## 10. Base Materials for Synthetic Leathers

Product Name	Description	Uses and Features
<b>SANPRENE LQ-X5</b>	Solution of non-reactive thermoplastic PU resin used in various processes for the manufacture of synthetic leathers.	SANPRENE LQ-X5 is used for the production of microporous layers in wet processes. It imparts softness feel and a good hot embossing property to leather. It is suitable for women's shoes.
<b>SANPRENE LQ-3313A</b>	One package of solvent diffusion type or evaporation type	SANPRENE LQ-3313A is used for the production of microporous layers in wet processes. It exhibits excellent properties in film formation. It is particularly suitable for the production of leather for garments with suede textures and smoothness. Also, it is suitable for the production of microporous layers for shoe tops.
<b>SANPRENE LQ-3358</b>		SANPRENE LQ-3358 is particularly suitable for the production of microporous layers for shoe tops in wet processes. It is designed to achieve good balance between film forming properties and resistance to low-temperature flex cracking. The resulting film has excellent hydrolysis resistance.
<b>SANPRENE LQ-258</b>		SANPRENE LQ-258 is used for the impregnation of the base fabric in wet processes. It is suitable for leather for shoe tops. The resulting film excels in hydrolysis resistance.
<b>SANPRENE LQ-660</b>		SANPRENE LQ-660 is used for the production of microporous layers in wet processes. It is particularly suitable for leather for women's shoes with a smooth, standard hard feel. It excels in properties to form uniform microporous film when used together.
<b>SANPRENE LQ-2700 LQ-2300</b>		These products are used for the production of microporous layers in wet processes. They are suitable for leather for shoe tops with a rather hard feel. The resulting films exhibit excellent hydrolysis resistance.
<b>SANPRENE LQ-3190</b>		SANPRENE LQ-3190 is used for the coating of nylon or polyester taffeta in dry processes. It is suitable for the production of coated fabric with a rather softness. The adhesion to the fabric can be improved still further by blending isocyanate therein.
<b>SANPRENE LQ-3510</b>		SANPRENE LQ-3510 is used for the production of the top layer of artificial or synthetic leather in dry processes. It is also used for a top coating to finish leather surfaces. The resulting film excels in light resistance.
<b>SANPRENE LQ-X37L</b>		SANPRENE LQ-X37L is used for the production of the top layer of artificial or synthetic leather in dry processes. It is suitable for leather with a rather hard feel and dry touch. The resulting film excels in light resistance.
<b>SST-1</b>	Urethane modified polyether	SST-1 is used as a softener to finish leather in the production of artificial or synthetic leather in dry processes.

## 11. Water-Borne Polyurethanes for Textile Processing

Product Name	Principal Component (Product form)	Uses and Features
<b>PERMARIN UA-150</b>	Polyether-type polyurethane emulsion (Anionic, Liquid)	PERMARIN UA-150 forms a film with strong impact resilience, imparting an elastic feeling to the cloth. It is mainly used for improving the texture.
<b>PERMARIN UA-300</b>	Polycarbonate-type polyurethane emulsion (Anionic, Liquid)	PERMARIN UA-300 exhibits good adhesion to various fibers including synthetics. It forms a film with strong impact resilience, imparting an elastic feeling to cloth. It provides processed cloth with excellent color fastness to washing, resistance to dry cleaning, and color fastness to rubbing. It is suitable for binders of printing paste.
<b>PERMARIN UA-310</b>	Polycarbonate-type polyurethane emulsion (Anionic, Liquid)	PERMARIN UA-310 exhibits good adhesion to various fibers including synthetics. It forms a film with strong impact resilience, imparting an elastic feeling to cloth. It provides processed cloth with excellent color fastness to washing, and resistance to dry cleaning. It is suitable for binders of various finishing agents.
<b>PERMARIN UA-50</b>	Polyether-type polyurethane aqueous solution (Anionic, Liquid)	PERMARIN UA-50 has crosslinks when heated to approx. 150 °C after drying. It forms a film with excellent color fastness to washing. It is suitable for shrink-resistant wool finish.
<b>PERMARIN UC-20</b>	Polyether-type polyurethane emulsion (Cationic, Liquid)	PERMARIN UC-20 forms a very flexible film. It is suitable for pilling-resistant finishes.

## 12. Polyurethane Emulsions for Adhesives

Product Name	Principal Component (Product form)	Uses and Features
<b>UPRENE UXA-307</b>	Polyester-type polyurethane emulsion (Anionic, Liquid)	UPRENE UXA-307 is stable even at pH conditions as low as 3. It can also be used as an adhesion improving additive for other emulsion-type adhesives. It particularly imparts excellent creep resistance to PVC.

## 13. Polyurethane Emulsions for Coatings

Product Name	Principal Component (Product form)	Uses and Features
<b>UCOAT UX-150</b>	Polyether-type polyurethane emulsion (Anionic, Liquid)	The resulting film is elastic and relatively flexible. UCOAT UX-150 is suitable as a coating for films and sheets.
<b>UCOAT UX-310</b>	Polycarbonate-type polyurethane emulsion (Anionic, Liquid)	The resulting film is elastic and relatively flexible, and excels in weather resistance. UCOAT UX-310 imparts excellent adhesion to various materials such as nylon and metals.
<b>UCOAT UWS-145</b>	Polyester-type polyurethane emulsion (Anionic, Liquid)	The resulting film is elastic and relatively hard. Because the emulsion particles are fine (approx. 20 nm), UCOAT UWS-145 excels in pigment dispersibility and the resulting film has high gloss. It is also suitable as a rust-inhibiting primer when used together with a cross-linking agent such as melamine-type one.