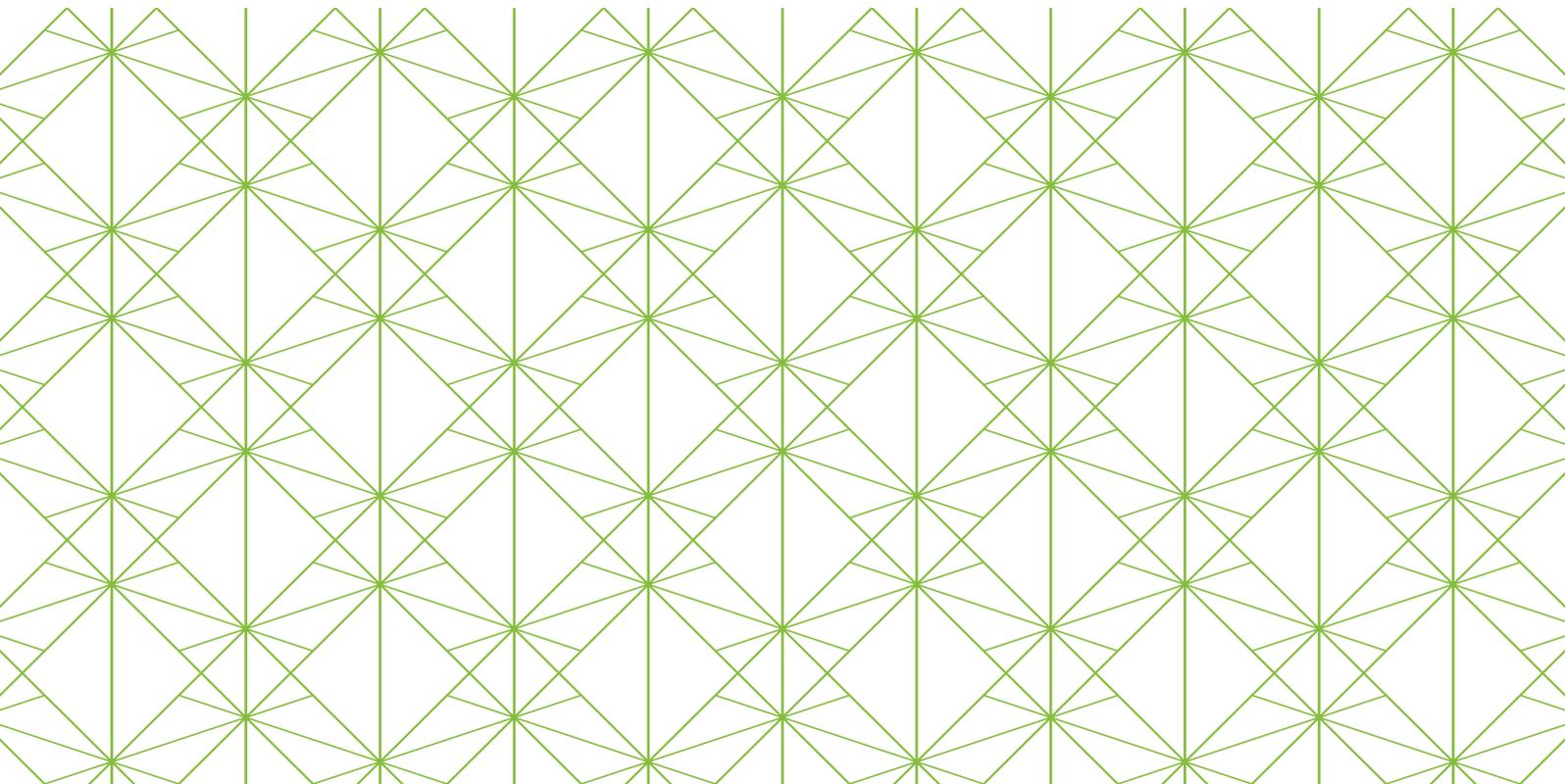


DREX
Polymer

APAO

Polymers & Adhesives

(Amorphous Poly Alpha Olefin)



D-REX's APAO Overview

INTRODUCTION

D-REX Polymer LLC is a JV company between DL Chemical and REXtac, both recognized as industry leaders in their respective fields for high-quality polymer, capable of satisfying a wide range of applications and adhesive needs in different markets.

D-REX Polymer's plant, with a capacity of 40,000 MT/year, manufactures APAO products from our world class Yeosu Complex in South Korea, equipped with state-of-the-art facilities.

CHARACTERISTICS

D-REX's APAO is chemically stable and resistant to degradation by both light and heat.

D-REX's APAO is environmentally friendly product enhancing our quality of life.

Product grades are generally clear, water white or of a yellowish color and non-toxic.

Features & Benefits of D-REX's APAO

FEATURES

5 Types of APAO Products

Homopolymer (100% Propylene)	Propylene-Ethylene Copolymer	Propylene-Butene Copolymer	Ethylene-propylene-butene-1 Terpolymer	Formulated APAO
◆ R&B (149°C- 159°C)	◆ R&B (132°C-143°C)	◆ R&B (93°C-121°C)	◆ R&B (120°C)	◆ Adheres to a variety of substrates
◆ NP (<15 dmm)	◆ NP (15-45 dmm)	◆ NP (25-30 dmm)	◆ NP (<15 dmm)	◆ Both high and low heat resistance
◆ OT (<5 seconds)	◆ OT (10-60 seconds)	◆ OT (120-350 seconds)	◆ OT (15 seconds)	◆ Various OT products

Properties

• Melt Viscosity

MV, indicates processability and substrate wettability, and is typically determined at 190°C
Ranges from about 400 up to 50,000 + cps

• Ring and Ball Softening Point (RBSP)

RBSP, indicates resistance to heat
Our products range between about 93°C and 159°C

• Needle Penetration (NP)

NP, indicates resistance to deformation and hardness
Our products range from less than 15 up to 45 dmm, (the testing temperature of either 23°C or 25°C)

• Open Time (OT)

OT, indicates the time after an adhesive is applied during which a serviceable bond can be made.
Our products range from less than 5 seconds, up to 350 seconds.

Features & Benefits of D-REX's APAO

BENEFITS

1. Benefits for Adhesives

- ✓ Excellent adhesion and hot tack properties
- ✓ Bonding to various substrates
 - Fiber & Nonwovens (Personal hygiene)
 - PE & PP
 - Polyurethane foam
 - Paper & Corrugated cardboard

2. Good Chemical & Physical Properties

- ✓ Low odor and Low VOCs APAO
- ✓ Both high and low heat resistance
- ✓ Good moisture and gas barrier behavior
- ✓ Good thermal properties & Oxidation Stability
 - Excellent oxidation stability against light, UV radiation and air
- ✓ Compatibility (APAO is compatible/miscible with) :
 - Hydrogenated Styrene Block Copolymers (SBCs)
 - Hydrogenated tackifiers such as DCPD
 - Hydrogenated and partially hydrogenated C5
 - Low density metallocene PE and PP (m-PE, m-PP)
 - EVAs (high MFI and low (< 12 %) VA content)
 - Naphthenic, paraffinic and mineral oils
- ✓ Excellent electrical insulating properties
- ✓ Easy to apply
- ✓ Customized Open Time and Setting Time
- ✓ Low manufacture Cost = Reduce equipment downtime frequency
- ✓ Better mileage = Reduce cost per square meter due to low density
- ✓ Wide application methods – Spray, Pump, Roll Coating, Slot
- ✓ Use Neat (No Additional Additives) or Polymer Rich Formulas (Tackifier-free or low tackifier adhesive APAO)

Applications



D-REX's APAO Products by Applications

Category	Applications	Grades
Automotive	Battery Assembly	RT2315, RT2535, RT2788
	Load Floor	RT2730, RT2780, E101, RT9721, RT2788, RT6723, BG201
	Filter Assembly	RT2115, RT2215, RT2180, RT2788
	Headliner Components	RT2115, RT2180, RT2280, RT2788, RT6825, RT6723, BG201
	Head Lamp Bonding	RT2304, RT2315, RT2788
	Vibration/Sound Deadening	RT2730, RT2215, RT2180, RT2788, RT6825, RT6723, BG201
Nonwoven	Bi-Laminate : All Interior Applications	RT6825, RT6723, RT6275
	Personal Hygiene	RT2730, RT2830, RT7723, E101, RT2815
	Gowns & Drapes	RT2730, RT7723, E101
	Incontinence Mattress Pads	RT2730, RT7723, E101
	Dental Bibs	RT2730, RT7723, E101
Building & Construction	Pet Training Pads	RT2730, RT7723, E101
	Window Sealant	RT2304, RT2315, RT2535, RT2585
	Garage Door Sealing	RT2730, RT2732, RT2780
	Pipe Wrap	RT2730, RT9721
	Carpet Backing	RT2304, RT2535, RT6723, BG201
	Peel & Stick Flooring	RT2730
Packaging	Shower Sealing	RT2730, RT2732
	Pallet Stabilization	RT2304, E401
	Point of Sale Display	RT6825
Furniture	Specialty Packaging	RT6825, RT9721, RT6723, BG201
	Mattress	RT2535, RT2730, RT2880, E101, RT9721, RT2788, RT6723
	Woodworking	RT2880, RT2788
	Office Furniture	E101, RT2788, RT6723, RT6825
	Panel Lamination	RT2730, RT2830, RT2788
	Foam Bonding	RT2730, RT2830, E101, RT9721, RT2788, RT6723, RT7723 BG201
	Edge Banding	RT2730, RT2830, RT2788
Wire & Cable	Fiber & Filament Fixation in Carpets	E401
	Filling	RT2535
	Flooding	RT2535
Filtration	Fiber Optic	RT2730, RT7723, E101
	Heating, Air Conditioning Ventilation (HVAC)	RT2115, RT2535, RT2730, RT2788, RT6825, BG201
	Transportation Cabin Filter	RT2115, RT2535, RT2730, RT2788, RT6825, BG201
Electronics	Water & Fluid	RT2115, RT2535, RT2730, RT2788, RT6825, BG201
	Low Pressure Molding Systems	RT2180, RT2788, RT9130
ETC	Assembly	RT2715
	Polymer Modification	RT2330

Product Properties

✓ **D-REX Polymer's products are available in five primary polymer types.**

: Propylene homopolymers, Ethylene-propylene copolymers,
Butene-propylene copolymers, Ethylene-propylene-butene-1 Terpolymer, Formulated APAO

✓ **D-REX Polymer is focused on providing quality APAO (Amorphous Poly Alpha Olefin) products & solutions to our customers worldwide.**

Classification		Physical Properties						
Product Name	Polymer Type	Melt Viscosity	Needle Penetration	R&B Soft Point	Glass Transition Temp	Open Time	Tensile Strength	
		cps(@190°C)	dmm	°C	°C	sec	MPa	
RT	2115	Homopolymer	1,500	15	152	-20	<5	2.30
RT	2180	Homopolymer	8,000	10	157	-20	<5	2.56
RT	2215	Low Ethylene	1,500	20	143	-22	10	0.87
RT	2280	Low Ethylene	8,000	15	146	-22	10	1.10
RT	2304	Medium Ethylene	400	25	141	-29	20	0.50
RT	2315	Medium Ethylene	1,500	25	141	-29	20	0.57
RT	2330	Medium Ethylene	3,000	20	141	-29	20	0.82
RT	2385	Medium Ethylene	8,500	20	141	-29	20	0.80
RT	3460	Medium Ethylene	6,000	30	138	-27	30	-
RT	2535	High Ethylene	3,500	45	132	-30	60	0.34
RT	2585	High Ethylene	8,500	45	132	-30	60	0.34
RT	2715	1-Butene	1,500	30	110	-23	120	0.56
RT	2730	1-Butene	3,000	30	110	-23	300	0.61
RT	2732	1-Butene	3,000	22	121	-22	120	0.59
RT	2780	1-Butene	8,000	25	110	-23	120	0.69
RT	2788	1-Butene	8,500	<10	118	-23	80	7.58
RT	2807	1-Butene	750	25	90	-23	>800	1.17
RT	2815	1-Butene	1,500	25	85	-23	800	0.86
RT	2830	1-Butene	2,700	10	90	-23	350	1.23
RT	2880	1-Butene	8,000	8	93	-28	>450	3.00
E	401	Terpolymer APAO	2,800	13	120	-27	15	1.73

Classification		Physical Properties						
Product Name	Polymer Type	Melt Viscosity	Needle Penetration	R&B Soft Point	Glass Transition Temp	Open Time	Tensile Strength	
		cps(@190°C)	dmm	°C	°C	sec	MPa	
RT	6275	Formulated Ehtylene Copolymer	7,500	10	115	-13	<5	2.3
RT	6723	Formulated Butene Copolymer	2,300	30	143	-15	60	0.38
RT	6825	Formulated Butene Copolymer	2,600	17	156	-23	20	1.12
RT	7723	Formulated Butene Copolymer	2,200	30	107	-15	>900	0.21
RT	9130	Formulated Butene Copolymer	3,100	5	135	-22	<5	-
RT	9705	Formulated Butene Copolymer	2,500	30	110	-19	>425	0.30
RT	9721	Formulated Butene Copolymer	2,000	28	116	-10	480	0.37
RT	9745	Formulated Butene Copolymer	4,500	15	121	-12	120	-
E	101	Formulated Butene Copolymer	2,000	35	105	-13	900	0.20
BG	201	Formulated APAO	4,500	10	141	-12	240	9.0

HEALTH AND SAFETY INFORMATION

The Information for all grades of D-REX's APAO on health, safety and environmental characteristics, precautions and emergency procedures is contained in the Material Safety Data Sheet (MSDS/SDS). The user must fully understand the MSDS/SDS before handling, storing, and using D-REX's APAO. When using the product, please observe the guidance given in the MSDS/SDS, such as product information and handling precautions.

SHELF LIFE

The quality assurance of D-REX's APAO in original packaging from plant is **three years** from the manufacturing date under the condition which is complied with the stated handling and storage practices on the Material Safety Data Sheet (MSDS/SDS) and unopened. For more information, please contact our corresponding sales persons.



DISCLAIMER NOTICE

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