

we care
for the future
Healthcare,
Earthcare

SK chemicals

SKY PEL

ECO GRADE

ABOUT SKYPEL

G

GENERAL

High Performance

FX

COMPOUND

High Performance

P

PRODUCTIVITY

Fast cycle, Lower price

TX

BREATHABLE

Good breathability

ECO

ECOFREINDLY

Bio-based, Good resilience

LX

LOWER HARDNESS

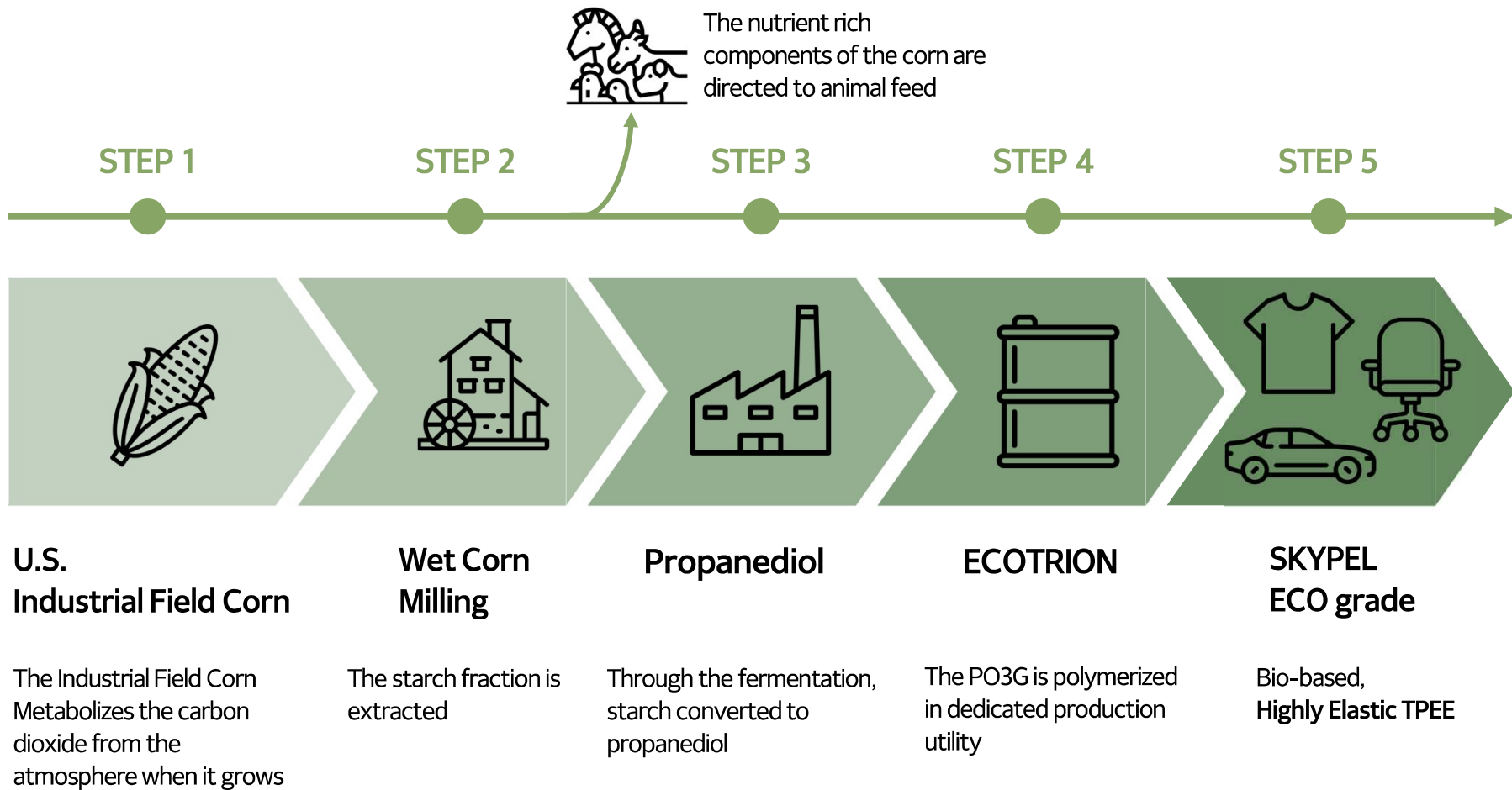
Soft touch

| SKYPEL ECO

- ❖ SKYPEL ECO is SK Chemical registered trademark for its brand of Bio-based thermoplastic polyester elastomers.
- ❖ SKYPEL ECO uses Industrial Field corn source and offers hardness levels and performance comparable to standard TPEEs.

**ECOFRIENDLY
BIO-BASED
GREEN PLASTIC
ELASTOMER**

SKYPEL ECO



BIO CONTENTS

64%

ECO130D

Hardness Shore D 30



35%

ECO155D

Hardness Shore D 55



12%

ECO172D

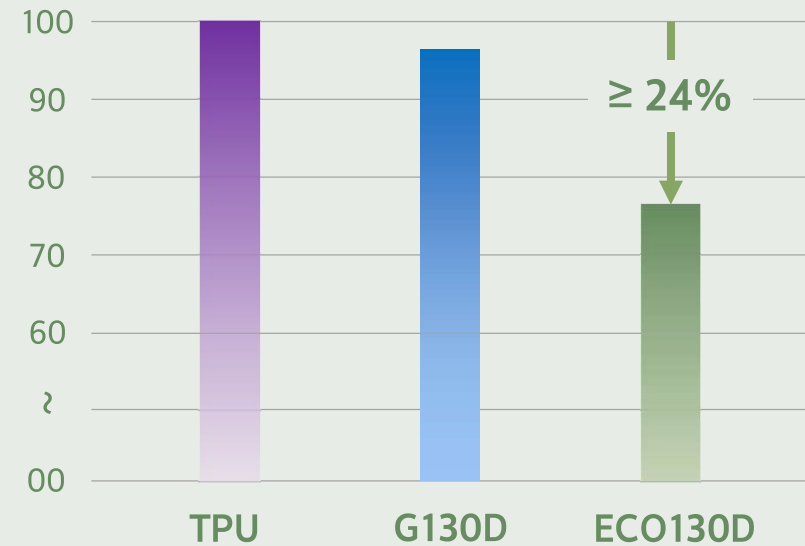
Hardness Shore D 72



LOWER Carbon footprint

Greenhouse Gas Emission

[단위 %]



■ PHYSICAL PROPERTIES

SK Chemicals can make no guarantee of results and assumes no liability in connection with the use of this information, confirmation of its validity and suitability should be obtained independently.

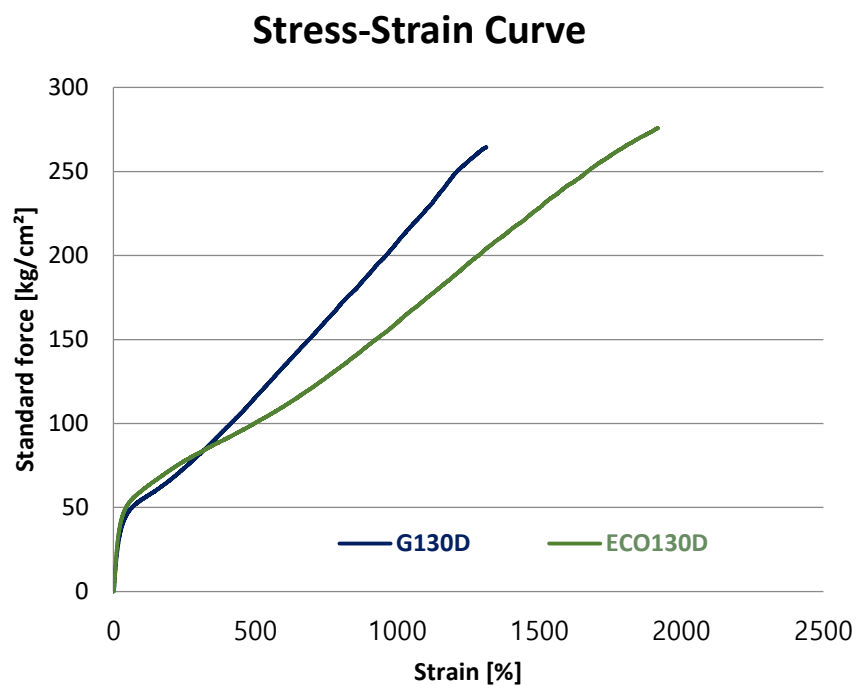
Properties	ASTM No.	Units	ECO 130D	ECO 140D	ECO 240D	ECO 155D	ECO 163D	ECO 172D
Bio-based material contents	D6866-22	%	64	39	51	35	24	12
Hardness	D2240	Shore D	30	40	40	55	63	72
Specific gravity	D792	-	1.11	1.18	1.14	1.20	1.23	1.27
Tensile stress at 5% strain ¹⁾	D638	kgf/cm ²	7	24	16	72	114	213
Tensile stress at 10% strain ¹⁾	D638	kgf/cm ²	20	45	35	121	177	282
Tensile stress at break ¹⁾	D638	kgf/cm ²	270	320	260	380	460	520
Elongation at break ¹⁾	D638	%	1800	1500	800	600	750	580
Young's modulus ¹⁾	D638	MPa	3.3	30	23	157	279	573
Melting point ²⁾	D3418	℃	180	154	195	203	211	219
Melt flow rate (Temperature, 2.16kg)	D1238	g/10min	18	11	11	13	13	15
		℃	220	190	220	220	230	230

1) ASTM Type IV dumbbells diecut from injection molded slab 2mm thick. Crosshead speed 50mm/min.

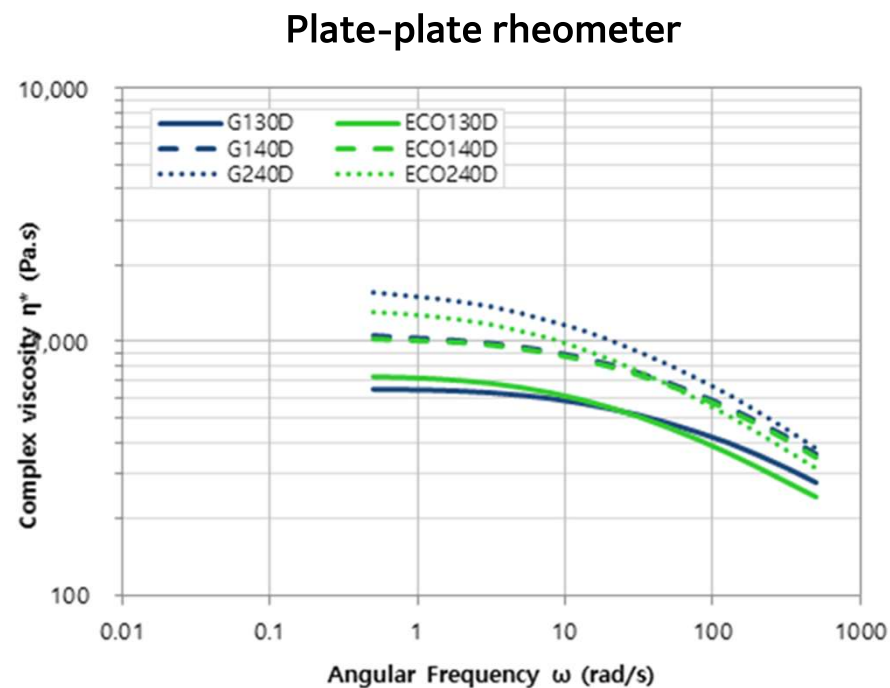
2) Differential Scanning Calorimeter(DSC), peak of endotherm. Heating rate 10℃/min.

■ PHYSICAL PROPERTIES

- G130D, G140D, G240D: PTMG based TPEE
- ECO130D, ECO140D, ECO240D: PO3G based TPEE



After the yield strength the curves have a different course. SKYPEL ECO grades have a higher elongation at the same tensile force.



Rotational rheological curves shows similar behaviors in different hardness groups

■ PROCESSING CONDITIONS

SKYPEL ECO grade should be sufficiently dried prior to processing. For effective drying using dehumidifying dryer, it should be held for 2 to 3 hours at 90-100°C or overnight at least 70°C. Pre-dried SKYPEL ECO in aluminum bag is also available for your convenience upon your choice. Injection molding and extrusion conditions are summarized in Table.

				ECO130D	ECO140D	ECO240D	ECO155D	ECO163D	ECO172D
Injection	Cylinder	Rear	℃	180	165	205	205	215	220
		Center		190	175	210	215	225	230
		Front		190	175	210	220	230	230
	Nozzle			195	180	215	225	235	235
	Mold			25	25	35	35	40	40
Extrusion	Cylinder	Rear	℃	170	150	195	195	205	210
		Center		180	160	210	210	215	220
		Front		185	165	210	210	220	225
	Die			185	165	210	210	220	225
	Melt			190	170	215	215	225	230

SKYPEL for Mid-sole

- New product (Tentative)

Properties	ASTM No.	Units	G125D	 ECO230D
Hardness	D2240	Shore D	20	30
Specific gravity	D792	-	1.05	1.1
Bio-based material contents	D6866-22	%	-	50
Tensile stress at break ¹⁾	D638	kgf/cm ²	200	170
Elongation at break ¹⁾	D638	%	1000	1500
Melting point ²⁾	D3418	℃	125	133
Melt flow rate (Temperature, 2.16kg)	D1238	g/10min	15	20.5
		℃	230	190

- 1) ASTM Type IV dumbbells diecut from injection molded slab 2mm thick. Crosshead speed 50mm/min.
 2) Differential Scanning Calorimeter(DSC), peak of endotherm. Heating rate 10℃/min.