

The logo for SAX Polymers, featuring the word "SAX" in a bold, white, sans-serif font on a red rectangular background.

SAX

P O L Y M E R S

Tech Day

24.9.2025

Presentation Saxaketon

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*There's something to be won so pay
close attention!*

*Take part in the competition.
Scan the questions at our table
exhibition in the technical centre.*

The competition is open until 3 p.m.

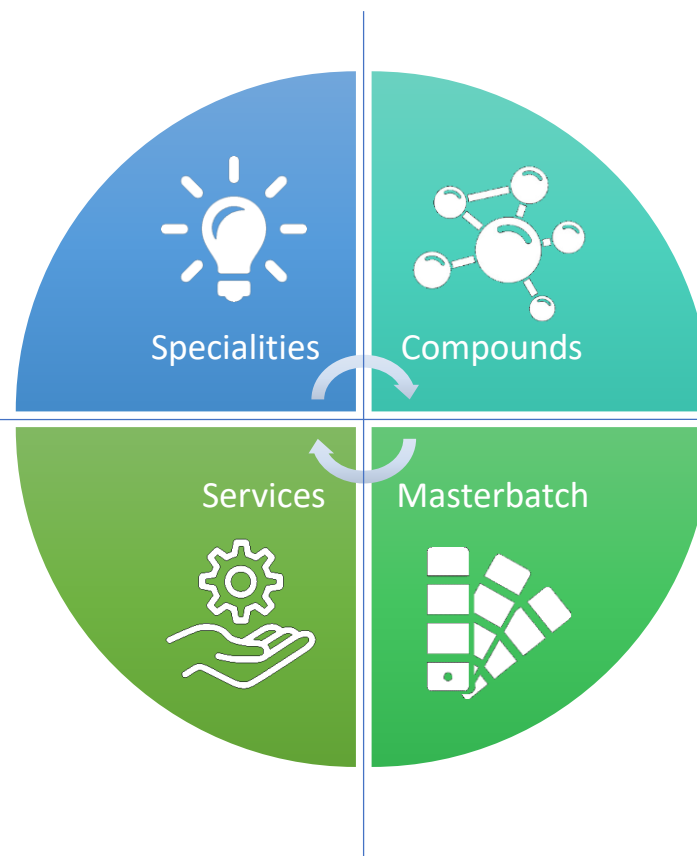


Product Portfolio

Overview SAX CH

Specialities
Customized engineering
Innovation / Trends

Family	Basis
SAXALAC	ABS
SAXATEC	ASA
SAXASAN	SAN
SAXALOY	Blends
SAXAKETON	PK
SAXAMID	PA
SAXAFORM	POM
SAXAGREEN	various



Service
Toll compounding
Coloring
Milling (external)
Drying / cristallisation
Dedusting
Repackaging
Laboratory

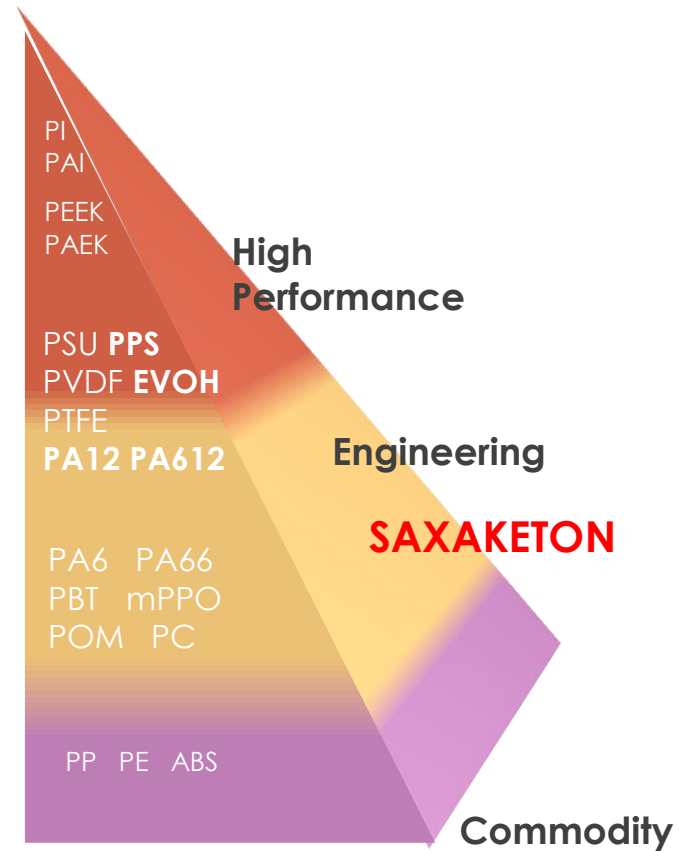
Masterbatch	Basis
Color MB	various
Functional MB	various

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SAXAKETON

Key Values



SAXAKETON; An engineering plastic with high performance properties

SAXAKETON

KEY VALUES



Highly resistant to automotive fluids, hydrocarbon solvents, and weak acids/ bases

-> 1.4 x higher compared to PA6



Outstanding water resistance

Less water absorption

Almost no effect on material properties



Resistance to solvents and fuel

Good barrier properties to small molecules/ gases

-> 1000 x higher compared to PP



$T_m=220^{\circ}\text{C}$
 $\text{HDT}=210^{\circ}\text{C}$
(0.46 Mpa)

VICAT=195°C

Glow-wire T=700°C

UL 94: HB, V-0



High friction and wear resistance

-> 14 x higher compared to POM

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KEY VALUES



High impact resistance
Charpy = 9 kJ/m²

-> 2.3 x higher compared to PA

Excellent Resilience to deformations and Resistance to repetitive loads

-> spring applications, gears and seals

Minimal noise, vibration and harshness

-> automotive interior

Higher thermal diffusivity coefficient

-> Faster cooling
-> Easy ejection

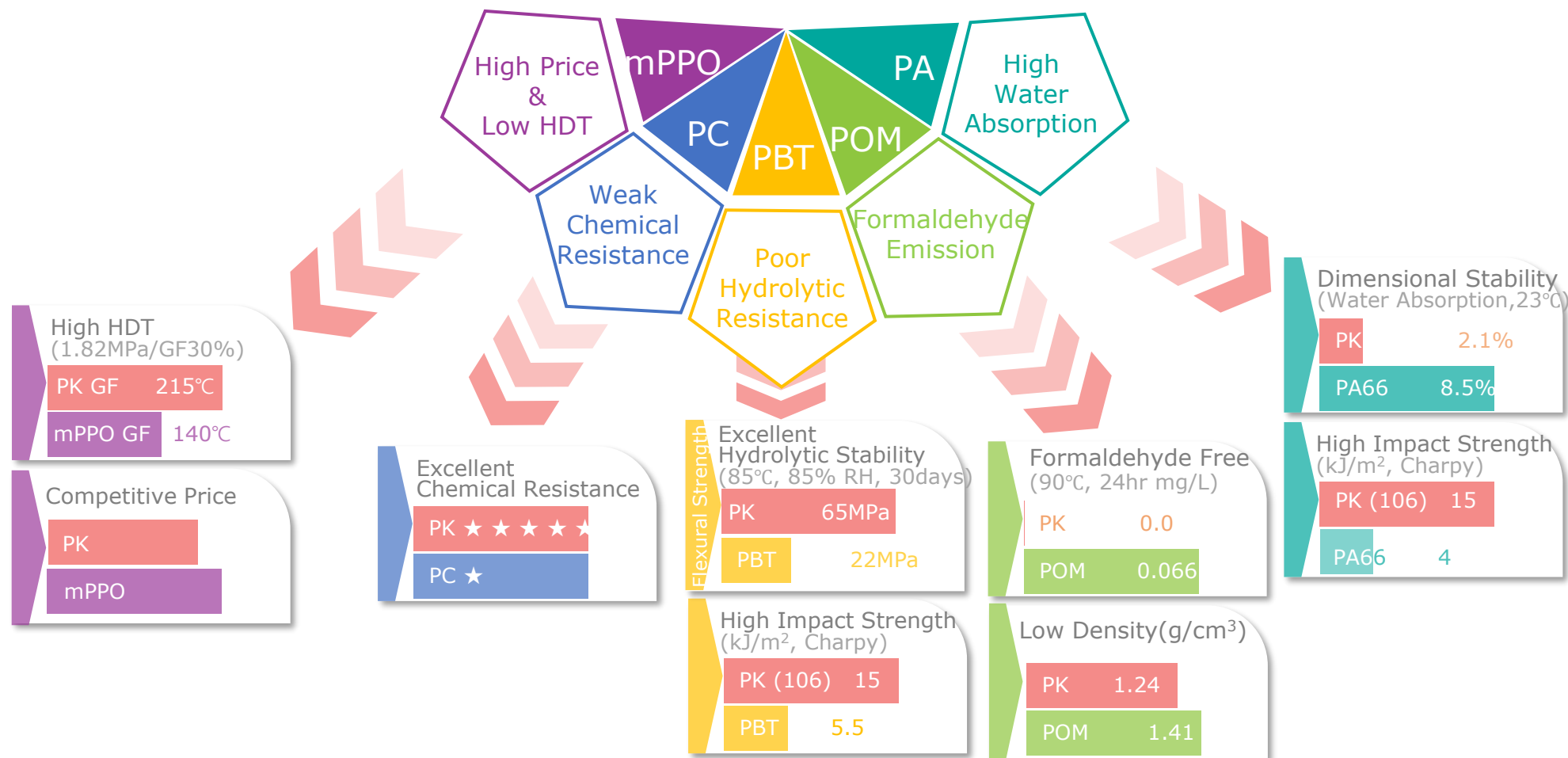
Low to zero VOC's
Formaldehyde free

Less smoke toxicity

-> Formation of CO₂ + H₂O

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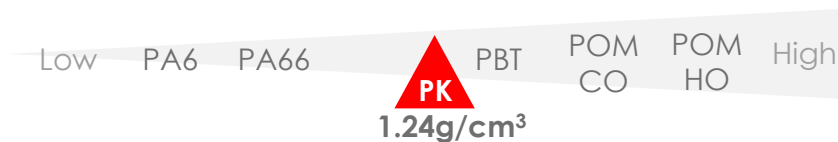
Comparison to Big 5



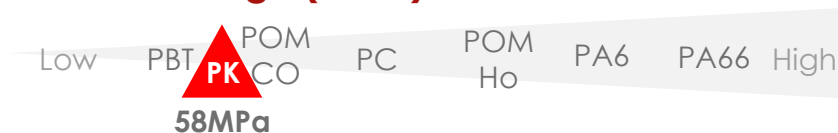
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Comparison to Engineering plastics

Density



Tensile Strength(Yield)



Heat distortion resistance (HDT,0.46MPa)



Toughness



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SAXAKETON Goes Green

Non-toxic, Safe and Sustainable

- free from harmful substances
- low VOC emissions

Eco-Friendly Engineering Plastic

- lower Global Warming Potential (GWP)

Process

- shorter cycle times
- Energy reduction
- reducing production time

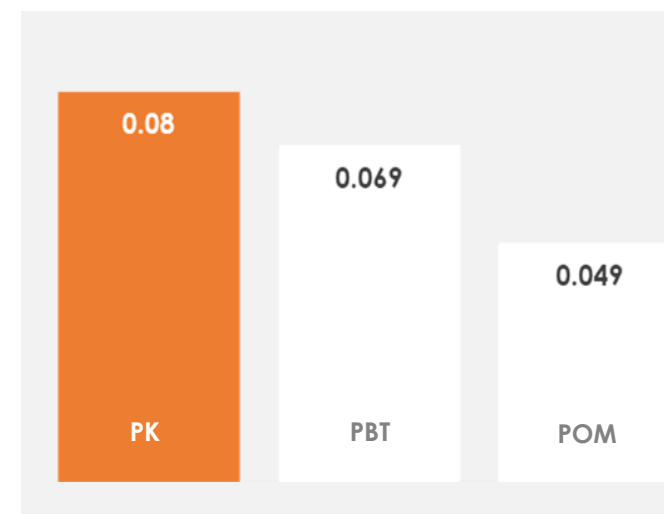
- ✓ Formaldehyde Free
- ✓ Phthalate Free
- ✓ Bisphenol A Free
- ✓ Acrylate Free
- ✓ Melamine Free
- ✓ Lead/ Chromium Free



Global Warming Potential

PK	3.1
POM	3.2
PC	3.4
PBT	4.9
mPPE	6.0
PA66	6.4
PA6	6.7

Cooling Speed comparison based on Thermal Diffusivity Coefficient(α)(m²/sec)



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Food and non Toxic



Food contact



Non-toxic






- All **SAXAKETON** types, except CF, S and FR variants, comply with FDA regulations (→ but are not FDA-registered)

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Overcoming The Challenges



	 Black Specks	 UV Degradation	 Discoloration
Typical Root Causes	<ul style="list-style-type: none">✓ Contamination during processing✓ Thermal degradation	<ul style="list-style-type: none">✓ Exposure to UV rays	<ul style="list-style-type: none">✓ Exposure to UV or chemicals✓ Exposure to heat or high humidity
Preventive Solutions	<ul style="list-style-type: none">▶ Purging:<ul style="list-style-type: none">• Purge thoroughly before and after processing to remove contaminants.▶ Operating condition:<ul style="list-style-type: none">• Low melt temperature: 20°C above its T_m• Residence time less than 5 min.▶ N₂ purging during production if possible	<ul style="list-style-type: none">▶ Indoor use:<ul style="list-style-type: none">• Keep PK products indoor▶ Outdoor use:<ul style="list-style-type: none">• Special products only<ul style="list-style-type: none">• With UV-additives• Dark colors• Painted or coated	<ul style="list-style-type: none">▶ Storage Conditions:<ul style="list-style-type: none">• Keep PK products indoor• Avoiding direct contact with light, heat, and humidity.▶ Color Choice:<ul style="list-style-type: none">• Consider using black, brown and green color in the PK formulation to minimize visible color changes over time• [Note] Even if color shifts PK's mechanical properties rarely changes

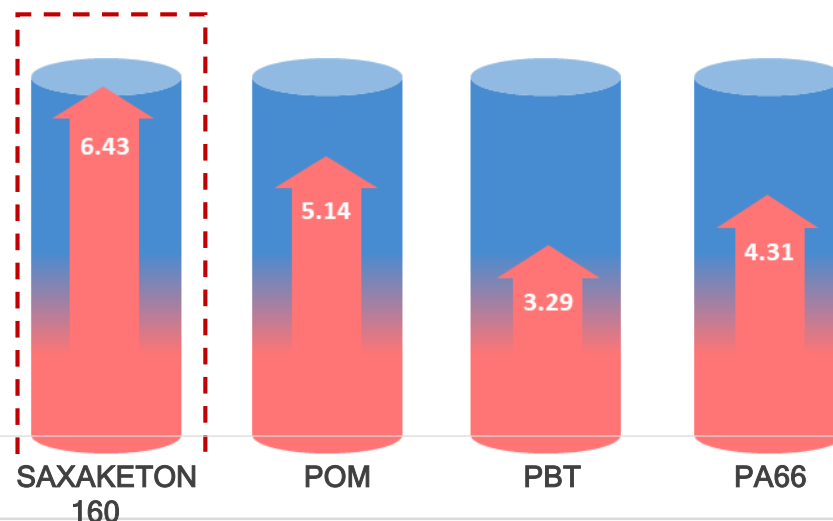
Processing SAXAKETON

Energy saving

- Energy savings
 - Low melt temperature
- Time saving
 - Fast crystallisation process
- Processing
 - Good flowability
 - High process stability

PK:

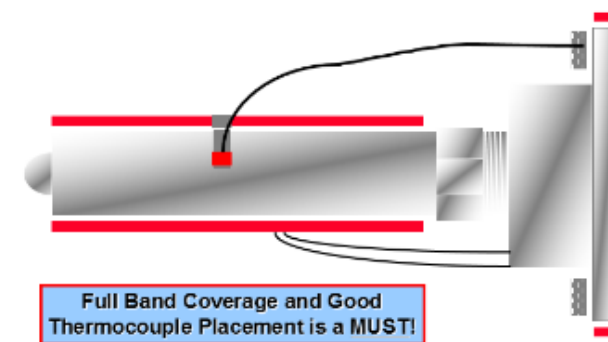
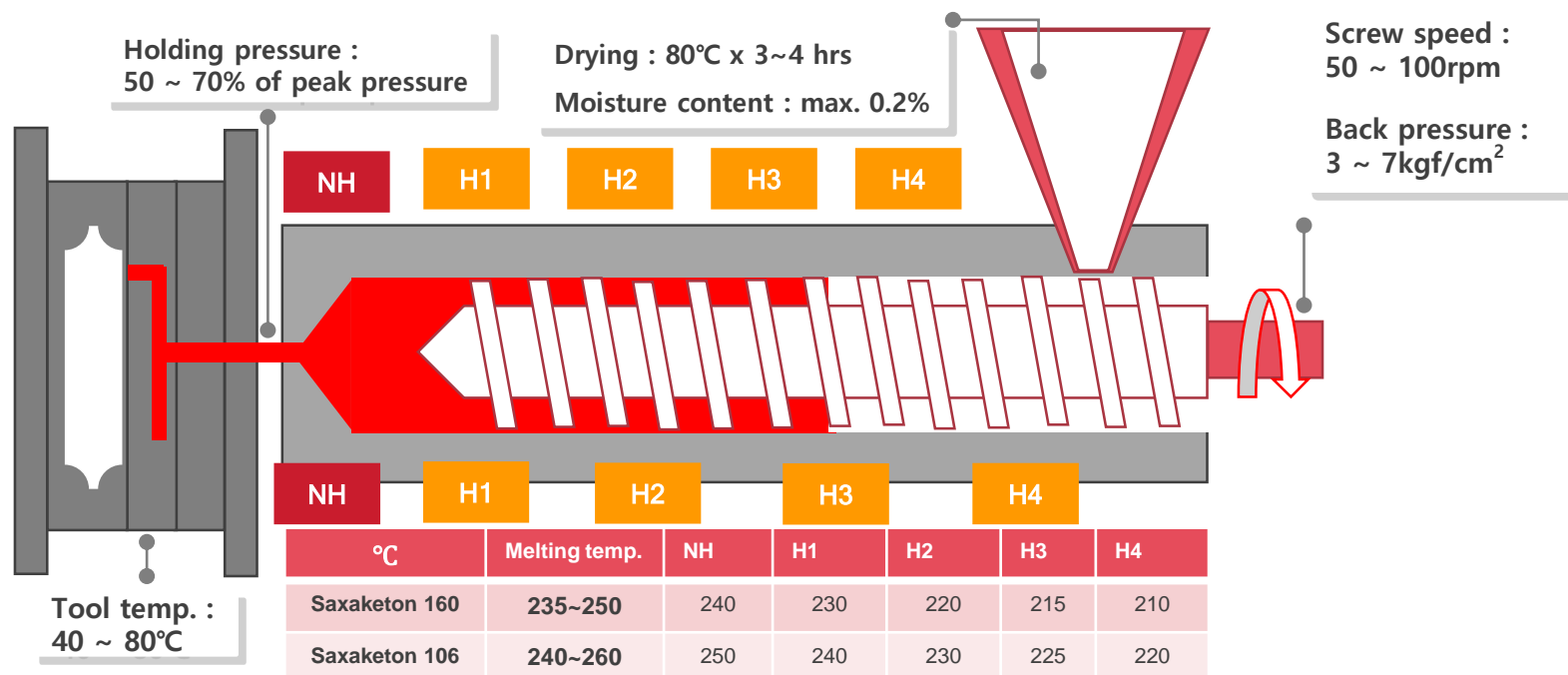
- T_m: 220°C (PA 6 = 220°C, PA66 = 260°C)
- T_c = 165 - 190°C (t_{1/2} = 0.5 min)
- higher thermal diffusivity coefficient compared to POM, PBT, or PA66
→ faster cooling rate during injection



<Thermal Diffusivity at T_{eject}, 10⁻⁸ m²/sec >

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Injection moulding - technical guide



- Well-controlled heated nozzles as using enough capacity heater and separated thermocouple are strongly recommended to prevent freeze-off issue at nozzle due to small sized nozzle orifice or rapid solidification of PK.
- Should be thoroughly purged at processing temperature with purging material such as HDPE or other commercially available purging compounds.

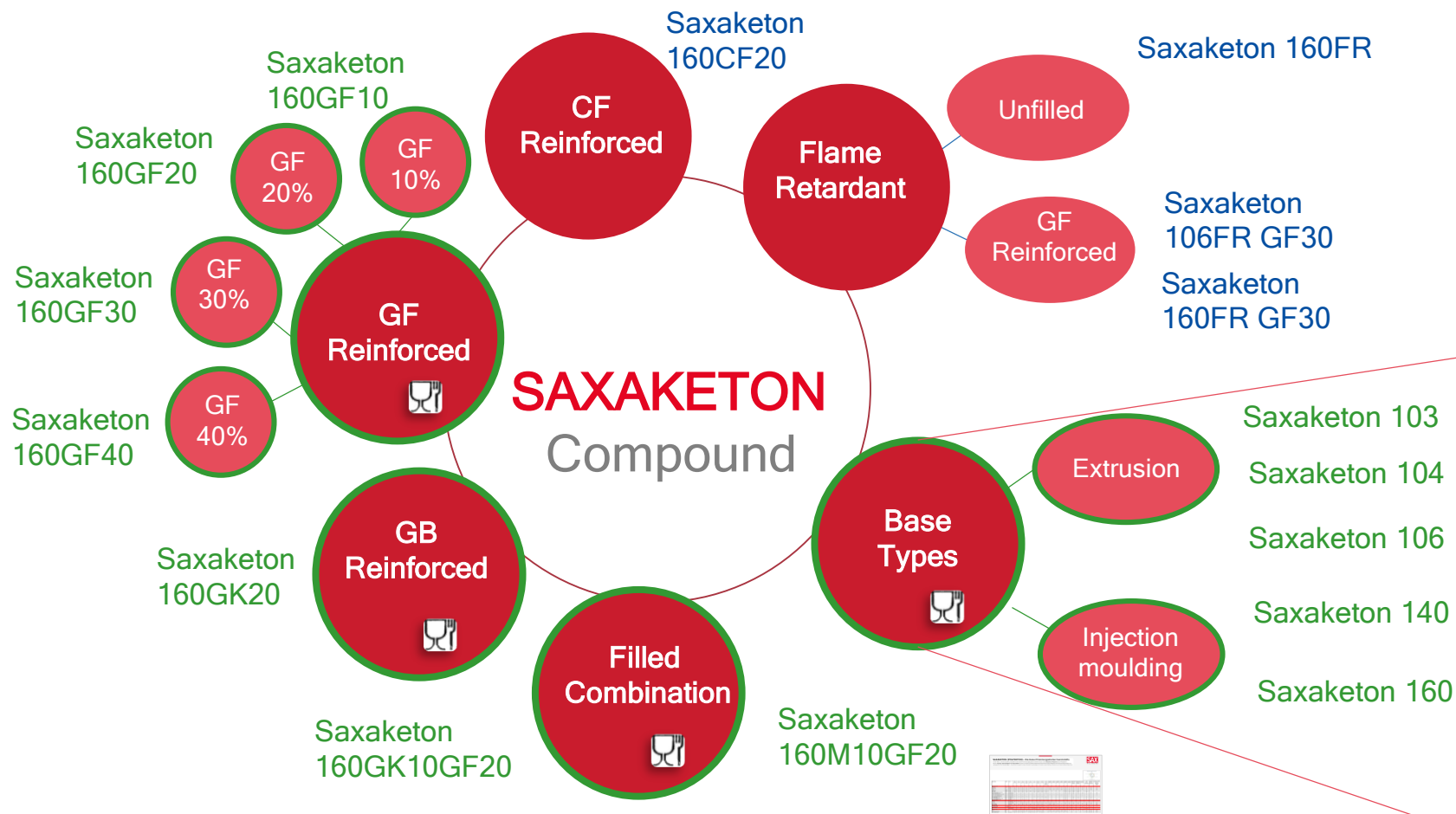
✓ Recommended nozzle orifice size



- Small-sized m/c (200T or less): min. Ø3.5mm
- Mid-sized m/c (200~450T): min. Ø4.0mm
- Mid- to large-sized m/c (500T or more): min. Ø5.0mm

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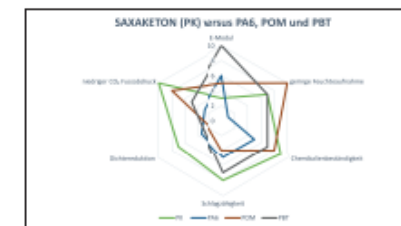
Portfolio



Product (Base-Types)	Tm in (°C)	MVR (cm ³ /10 min)
Saxaketon 103	220	3
Saxaketon 104	195	4
Saxaketon 106	220	6
Saxaketon 140	195	40
Saxaketon 160	220	60

SAXAKETON (POLYKETON) – Die Zukunft leistungsstarker Kunststoffe

In einer Welt, in der technische Kunststoffe immer höheren Anforderungen gerecht werden müssen, setzt **Saxaketon (Polyketon)** neue Maßstäbe in Sachen **Leistung, Nachhaltigkeit und Vielseitigkeit**. Dieser innovative Hochleistungskunststoff kombiniert herausragende mechanische Eigenschaften mit außergewöhnlicher Beständigkeit – die perfekte Lösung für anspruchsvolle Anwendungen in Industrie, Automobilbau, Elektronik und vielen weiteren Bereichen.



Eigenschaften	Einheit	Norm	103 Standard	104 Standard	106 Standard	106U Standard UV	140 Standard	160 Standard	160U Standard UV	1250 Standard	160S Standard gleit-optimiert	106GF30 Glasfasern	160GF10 Glasfasern	160GF20 Glasfasern	160GF30 Glasfasern	160GF40 Glasfasern	160GK20 Glaskugeln	160M10GF20 Mineral/ Glasfasern	160GK10GF20 Glaskugeln/ Glasfasern	160CF20 Kohlefasern	160FR Standard Flammenschutz	160FRGF30 Glasfasern Flammenschutz	160FRGF30 – ORS019 Glasfasern Flammenschutz Orange		
Mechanische Werte																									
Zugfestigkeit	N/mm ²	ISO 527-1	55	40	57	57	45	60	60	63	58	135	75	117	145	130	50	100	110	95	50	120	90		
Bruchdehnung	%	ISO 527-1	300	300	300	300	300	300	20	100	75	3.0	7.0	3.6	3.2	3.0	18	6.0	4.0	3.7	40	3.0	5.0		
E-Modul	N/mm ²	ISO 527-1	1300	900	1350	1350	-	1500	1500	1550	1450	7800	3500	5700	8400	8800	2400	5100	5900	7100	1700	7800	6700		
Biegefestigkeit	N/mm ²	ISO 178	50	40	50	50	45	57	57	60	60	-	-	-	-	190	75	145	162	-	56	-	-		
Biegemodul	N/mm ²	ISO 178	1200	850	1250	1250	950	1400	1400	1450	1400	-	-	-	-	7400	2300	4200	4900	-	1550	-	-		
CHARPY Schlagzähigkeit 23°C/50% RH	KJ/m ²	ISO 179/1eU	n.b.	n.b.	n.b.	n.b.	-	n.b.	n.b.	n.b.	n.b.	70	55	65	75	65	69	70	60	42	n.b.	55	58		
CHARPY Schlagzähigkeit -30°C	KJ/m ²	ISO 179/1eU	-	-	-	-	-	-	-	-	n.b.	-	-	-	-	60	45	68	64	33	6	33	54		
CHARPY Kerbschlagzähigkeit 23°C/50% RH	KJ/m ²	ISO 179/1eA	19	14	17	17	7	8	8	6	8	13	12	12	15	13	4	15	10	5	53	11	10		
CHARPY Kerbschlagzähigkeit -30°C	KJ/m ²	ISO 179/1eA	4	3	3	3	-	2	2	2	3	-	-	-	12	10	3	7	7	4	2	7	6		
IZOD Schlagzähigkeit 23°C/50% RH	KJ/m ²	ISO 180/1U	n.b.	n.b.	n.b.	n.b.	-	n.b.	n.b.	n.b.	n.b.	-	-	-	-	71	-	80	65	-	n.b.	55	-		
IZOD Schlagzähigkeit -30°C	KJ/m ²	ISO 180/1U	-	-	-	-	-	-	-	-	n.b.	-	-	-	-	68	-	60	62	-	6	33	-		
IZOD Kerbschlagzähigkeit 23°C/50% RH	KJ/m ²	ISO 180/A	20	15	15	15	-	7	7	6	8	-	-	-	-	13	-	17	11	-	45	11	10		
IZOD Kerbschlagzähigkeit -30°C	KJ/m ²	ISO 180/A	4	4	4	4	-	3	3	2	4	-	-	-	-	10	-	9	7	-	4	7	6		
Thermische Werte																									
Vicat B50	°C	ISO 306/B50	190	152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Vicat B120	°C	ISO 306/B120	-	-	190	190	-	190	190	190	185	206	200	-	-	210	190	190	205	-	185	191	208		
HDT A (1.8 Mpa)	°C	ISO 75-1A	80	65	90	90	70	92	92	92	85	210	200	210	215	210	105	165	205	203	102	160	210		
HDT B (0.45 Mpa)	°C	ISO 75-1B	185	140	185	185	150	190	190	190	-	215	205	-	-	-	-	-	-	-	145	-	216		
Rheologische Werte																									
MVR (240°C/2.16kg)	cm ³ /10min	ISO 1133	3	5	6	6	45	60	60	200	40	4	40	35	30	6	33	6	9	28	32	15	8		
Elektrische Werte																									
CTI		ASTM D3638	-	-	-	-	-	PLC 0	-	-	-	-	-	-	-	-	-	-	-	-	PLC 0	-	-		
Allgemeine Werte																									
Dichte	g/cm ³		1.24	1.22	1.24	1.24	1.22	1.24	1.24	1.24	1.23	1.47	1.30	1.40	1.48	1.54	1.40	1.45	1.45	1.30	1.23	1.47	1.45		
Verarbeitungsschwindigkeit	%		1.5-1.8	1.5-1.8	1.5-1.8	1.5-1.8	1.5-1.8	1.5-1.8	1.5-1.8	1.5-1.8	1.4-1.9	-	0.2-0.8	0.4-1.0	0.3-1.0	0.2-0.8	0.1-0.6	-	-	-	-	0.9-1.2	0.4-1.0	0.4-1.0	
Entflammbarkeitsklasse	mm	acc. UL94	HB	HB	HB	HB	HB	HB	HB	HB	-	-	-	-	-	-	-	-	-	-	V-0	V-0	V-0		

SAXAKETON

What are your application ideas?

- Connectors
- Clips
- Conveyor belts
- Rolls



- Trays
- Cable ties
- Profile/Pipes
- Gears

*The competition is open - the SAX
Polymers team wishes you
SAXESS -> success!*

