

TABLE TOP CHAIN MATERIAL SELECTION

Acetal vs Polypropylene vs PEEK vs Nylon — temperature, chemical, and wear comparison for application-specific selection.

1. Material Comparison Matrix

PROPERTY	POM (ACETAL)	PP (POLYPROPYLENE)	PEEK	NYLON (PA6)	STAINLESS STEEL
Max Temperature	90°C / 194°F	80°C / 176°F	250°C / 482°F	120°C / 248°F	400°C / 752°F
Tensile Strength	High	Medium	Very High	High	Very High
Wear Resistance	Excellent	Good	Excellent	Good	Excellent
Chemical Resistance	Good (not acids)	Excellent	Excellent	Good (not acids)	Excellent (316 grade)
Food Grade	Yes (FDA)	Yes (FDA)	Yes (FDA)	Yes (some grades)	Yes (316 only)
Moisture Absorption	Low	Very Low	Very Low	High (affects dimensions)	None
Cost	Medium	Low	Very High	Medium	High
Weight	Medium	Light	Medium	Medium	Heavy
Noise Level	Low	Very Low	Low	Low	Higher

2. Application-Based Selection

APPLICATION	RECOMMENDED MATERIAL	REASON
Bottling (ambient)	POM	Good wear, low friction, FDA approved
Bottling (hot fill 85°C+)	PP or PEEK	POM degrades above 90°C
Food processing (ambient)	POM or PP	FDA approved, easy to clean
Food processing (hot)	PEEK or Stainless 316	High temperature, food safe
Pharmaceutical	POM or PEEK	Low particulate, cleanroom compatible
Chemical environment	PP or PEEK	Excellent chemical resistance
High load / heavy product	Steel or PEEK	High tensile strength
High temperature (200°C+)	PEEK or Steel	Only materials rated above 200°C
Washdown / caustic cleaning	PP or Stainless 316	Resists caustic cleaners
Low noise requirement	PP	Softest polymer, lowest noise

3. Chemical Compatibility Quick Reference

CHEMICAL	POM	PP	PEEK	NYLON	SS 316
Water	✓	✓	✓	✓	✓
Acids (dilute)	✗	✓	✓	✗	✓
Alkalis (dilute)	✓	✓	✓	✓	✓
Solvents	~	✓	✓	~	✓
Oils / Greases	✓	✓	✓	✓	✓
Salt water	✓	✓	✓	✓	✓
Chlorine	✗	✓	✓	✗	✓
Caustic soda	✓	✓	✓	~	✓

✓ = Compatible | ~ = Limited | ✗ = Not recommended

COST VS PERFORMANCE

PP is the most economical polymer choice and works for most ambient applications. POM is the best all-rounder for standard packaging. PEEK is only justified for extreme temperatures or chemical environments. Steel is for heavy-load or high-temperature applications where polymers cannot perform.

NEED MATERIAL SELECTION HELP?

Describe your application environment and Uniking Canada will recommend the optimal material.

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