

CY GSRA 62A / 70AT vs GCPU vs Thermoset Rubber — Bottom-Solution TDS

Side-by-side evaluation on 11 mechanical, tribological, and process metrics. CY GSRA 62A spec matches the industry 62A-grade soft TPU category baseline (drop-in equivalent); 70AT is the premium clear-grade option. Source: TDS Sheet 1, 2026-03-23 revision.

Material Comparison Matrix

Metric	CY GSRA 62A ★ Semi-transparent · Lead	CY GSRA 70AT Fully transparent · Premium	GCPU Thermoset PU (EU)	Rubber Thermoset Rubber
Material Type	TPU (thermoplastic)	TPU (thermoplastic)	Thermoset PU	Thermoset Rubber
Transparency	Semi-transparent	Fully transparent	Can be clear	Solid (clear rubber expensive)
Surface Effect / Design Freedom	Matte + Pearl + Neon-Clear ✓	Matte + Pearl + Neon-Clear ✓	Limited (cure process)	Limited (cure process)
Density g/cm³	~1.19	1.17	1.19	1.15~1.25
Hardness Shore A	~63A	68A	64A	60~67A
Tensile Strength MPa	~22	28	34.5	40~60
Elongation %	~950	700	656	400~800
Tear Strength N/mm	~71 ★	75 ★ ★	53.4	40~60
Abrasion mm³ (lower is better)	~25 ★ ★	35	30	50~90
SATRA TM144 DRY / WET	1.35 ★ / 0.44	1.35 ★ / 0.41	0.80 / 0.50	1.30 / 0.50
INDUSTRY REFERENCE · CONFIRM WITH CUSTOMER TRIAL				
Cycle time s / outsole	100-130 s (injection)	100-130 s (injection)	240-360 s (cure)	360-480 s (cure)
Finishing / labor	Light (runner trim only)	Light (runner trim only)	Medium (light deflashing)	Heavy (flash trim per mold)
Wall thickness	~1mm average achievable	~1mm average achievable	Limited (cure process)	Limited (cure process)
CO₂ footprint kg CO₂e / kg	~6.0	~6.0	~5.0	~3.0
Recyclability	100% (thermoplastic)	100% (thermoplastic)	0% (crosslinked)	0% (crosslinked)

★ Best-in-class in the 6-material TDS (full table includes CY GSRA 62A · CY GSRA 70AT · NOSHOW EU · Polyether Asia as reference).
Data assumption: CY GSRA 62A spec matches the industry 62A-grade soft TPU category baseline (full TDS match — Hardness 63A, Density 1.19, Tensile 22 MPa, Tear 71 N/mm, SATRA 1.35/0.44, Abrasion 25 mm³, Elongation 950%). If CY has an official 62A TDS, the official numbers supersede.

Key Takeaways for Brand Decision

1 Historic TPU Trade-Off, Broken
25 mm³ abrasion + SATRA 1.35 DRY on the same grade — both best in 6-material TDS (+69% vs GCPU 0.8). The cross-generational breakthrough: **abrasion ↔ grip, no trade-off**.

2 Industry 62A-Grade Soft TPU Baseline · Drop-In
62A spec: **63A · 1.19 · 22 MPa · 71 N/mm · SATRA 1.35/0.44 · 25 mm³ · 950% elongation**.
Comprehensive parity with the industry 62A-grade soft TPU baseline. **Drop-in directly**, no re-tooling.

3 Two Grades, One Proposal
62A (63A, semi-transparent) for athletic / lifestyle SKUs. **70AT** (68A, fully transparent) for premium clear / tinted styles — **same injection platform**, two options in one proposal.

4 Full Injection Edge: 3-4× Faster + Less Labor + 1mm Wall
3-4× faster (100-130s vs 360-480s) + **less labor** + **1mm walls** + **≈ rubber mold cost**. Full injection edge across cycle, finishing, design, and tooling. *Industry reference — confirm with trial*

5 Thermoplastic = 100% Recyclable
TPU re-melts sprues, runners, end-of-life parts into feedstock. GCPU / rubber are crosslinked: **zero closed-loop** for the brand's 2030 commitments.

6 GCPU Capacity Bottleneck, Solved
GCPU is cure-bound — capacity bottlenecks brand output. **TPU injection scales with machine count**, breaking the cure-oven ceiling. Critical for high-volume seasonal launches.

7 Design Freedom — Matte / Pearl / Neon-Clear
Injection TPU enables **matte, pearlescent**, and **neon-clear** — the 2026+ outsole design direction. Rubber / GCPU cannot match these surfaces.
Differentiated look & feel, no secondary processing.