More Durable and Slip Resistant : Discover A Better Solutions for Overmolding on Hand Tool Grips

Chengdu, Sichuan Jan 19, 2026 (Issuewire.com) - Discover New Performance and Better Texture Solutions for Overmolding on Hand Tool Grips

In professional and industrial applications, hand tools are not merely implements for completing tasks; they are extensions of the user's efficiency, safety, and comfort. The grip, serving as the core interface

for human-tool interaction, has its performance directly dictated by the material properties, which determine grip stability, operational precision, and fatigue resistance during prolonged use. Traditional overmolding solutions often involve compromises when balancing slip resistance, durability, and cost. Si-TPV, as an innovative high-performance engineering elastomer, presents a breakthrough material choice for grip overmolding applications. Surpassing conventional rubber and TPE, it provides a systemic performance enhancement and premium tactile quality for tool handles through efficient single-shot injection overmolding.

Performance Bottlenecks of Traditional Engineering Plastic Overmolding Materials

To achieve slip resistance and cushioning for tool handles, the industry commonly employs a two-shot molding (overmolding) process, where a soft elastomer is overmolded onto a rigid substrate (such as PP, ABS, or nylon). The primary traditional materials used for this purpose are Thermoplastic Vulcanizates (conventional TPV) and Thermoplastic Polyurethane (TPU). While each has its characteristics, both exhibit significant drawbacks.

Thermoplastic Vulcanizate (Conventional TPV)
Typically based on an EPDM/PP system, conventional TPV offers good weather resistance and elasticity. However, its **slip resistance is often inadequate**, especially when the surface is contaminated with water, oil, or sweat, leading to a drastic drop in grip and potential safety hazards. Furthermore, the surface texture can be coarse, and the material may become tacky under high temperatures, failing to provide a consistently secure and dry grip. It also lacks the refined matte finish sought after for premium tools.

Thermoplastic Polyurethane (TPU)
TPU boasts high mechanical strength and good abrasion resistance. Its main drawback lies in its **excessive hardness and insufficient cushioning**. To maintain strength, its hardness is typically high, resulting in a grip that is too rigid. This can cause hand fatigue during prolonged use and offers limited vibration damping. Additionally, TPU is sensitive to processing temperatures, and its adhesion to certain common substrates can be poor, potentially compromising overmolding integrity and posing a risk of delamination.

Si-TPV 3525-65A: An Exceptional Solution for Professional-Grade Tool Handles

Si-TPV 3525-65A combines the superior properties of silicone rubber—soft touch, excellent slip resistance, and weatherability—with the easy processability of thermoplastics through its unique dynamic vulcanization technology. As an overmolding material for handles, it directly addresses the core shortcomings of traditional materials.

Exceptional Slip Resistance in Both Dry and Wet Conditions
It achieves an optimal balance between coefficient of friction and surface feel. Its micro-surface structure provides sufficient gripping traction while effectively preventing slippage. It delivers reliable, consistent grip whether hands are dry, wet, or sweaty, significantly enhancing operational safety and control precision.

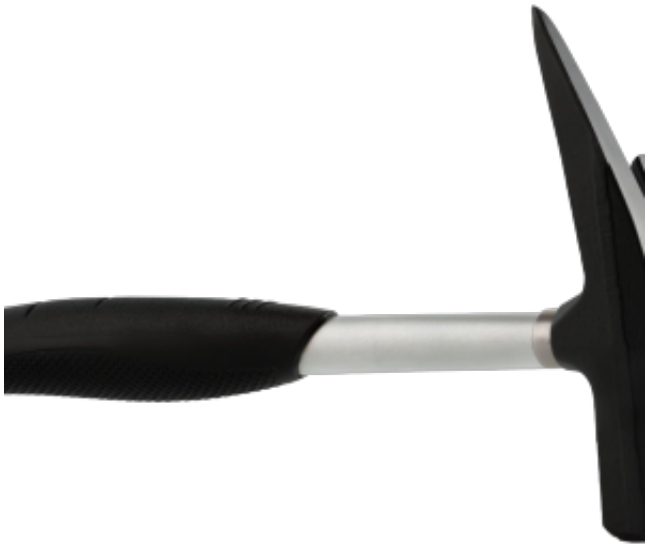
Superior Wear and Scratch Resistance
Fortified by its silicone rubber phase, the overmolded layer exhibits outstanding resistance to abrasion. It withstands long-term friction, impacts between tools, and contact with rough work surfaces, effectively preventing the grip from becoming slippery, glossy, or scratched from wear. This ensures handle

performance remains stable throughout the product's entire lifecycle.

Premium Matte Finish with Stain-Resistant, Easy-Clean Properties
Si-TPV 3525-65A readily achieves a durable, fine matte or satin finish. This surface not only appears more professional and high-end but also greatly improves tactile quality—offering a refined, warm feel without tackiness. Its dense surface effectively resists penetration from oils, dust, and dyes, preventing stains from setting in. A simple wipe after daily use restores it to a like-new condition.

Excellent Processability and Bonding Reliability
As a thermoplastic, Si-TPV 3525-65A can be efficiently processed using standard injection molding equipment. It exhibits strong chemical compatibility with various common engineering plastic substrates, enabling secure, integral bonding through a single-shot overmolding process. This fundamentally eliminates the risk of adhesive failure, ensuring product structural integrity and durability. It also achieves an excellent balance of softness and resilience, allowing it to provide sufficient cushioning for impact tools (e.g., hammers) and flexible support for precision tools (e.g., screwdrivers, pliers), significantly reducing hand pressure and fatigue during extended use.

Choosing Si-TPV is a forward-looking strategic decision. It transforms the tool handle from a mere functional component into an integrated carrier of safety engineering, ergonomics, and brand aesthetics, enabling products to stand out in a competitive market. To find out more, contact us via amy.wang@silike.cn or visit www.si-tpv.com explore how to integrate Si-TPV into your formulations today.



Media Contact

Chengdu Silike Technology Co.,Ltd.

*********@silike.cn

86-028-83625089

No.336 Chuangxin Ave, Qingbaijiang Industrial Zone, 610300,Chengdu, China

Source : Chengdu Silike Technology Co.,Ltd.

See on IssueWire