



SBC TPE Product Technology

United Soft Plastics

- Innovative manufacturer of SBS TPE's
- Started in 2005
- Located in Lawrenceville, GA
- Capacity: 3,000 metric tons/year
- Global enterprise with offices in:
 - Santa Fe, Mexico
 - Kuala Lumpur, Malaysia
 - Germany
- ISO 9001:2008
- Focused on meeting customer needs

United Soft Plastics Product Lines

- UNISOFT TPE™
 - Standard series SBC TPE's
- UNISOFT ADHESION™
 - Adhesion series SBC TPE's
- UNISOFT SPECIAL™
 - Special performance SBC TPE's
- UNISOFT CUSTOMIZED™
 - Customized SBC TPE's
- UNISOFT POLARIC™
 - Acrylic based TPE's
- UNISOFT TOUCH™
 - Extreme haptic characteristics
- UNILINK TPE-V™
 - Based on cross-linked EPDM/PP



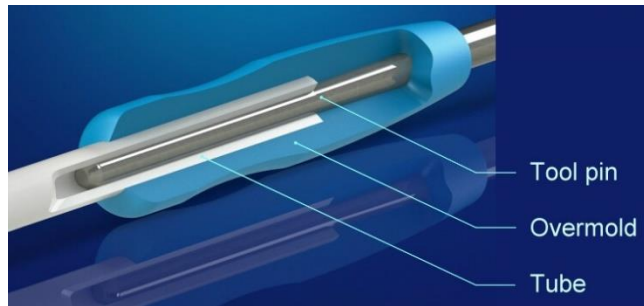
UNISOFT TPE™

- Cost effective standard product line
- Pre-developed standard recipes
- Colorable
- Wide hardness range
- Excellent property matrix
- Fits easily into many different applications
- Clear and opaque materials
- Low specific gravity
- Soft touch
- Easy processing
- Technical data available on USP website
- Bondable to PP and PE

Hardness
25 SHORE A
30 SHORE A
35 SHORE A
40 SHORE A
45 SHORE A
50 SHORE A
55 SHORE A
60 SHORE A
65 SHORE A
70 SHORE A
75 SHORE A
80 SHORE A
85 SHORE A
90 SHORE A

UNISOFT ADHESION™

- Over-molds and bonds to many engineered thermoplastic substrate materials
 - PC
 - ABS
 - SAN
 - PPO
 - HIPS
 - PS
 - PBT
 - PET
 - More
- Wide durometer range
- Excellent property matrix
- Clear over-molding grades available
- Easy processing



Hardness

35 SHORE A

40 SHORE A

45 SHORE A

50 SHORE A

55 SHORE A

60 SHORE A

65 SHORE A

70 SHORE A

75 SHORE A

80 SHORE A

85 SHORE A

90 SHORE A

UNISOFT SPECIAL™

- Materials for special markets, specifications, and properties
- Provides additional material performance not found in standard SBC TPE's
 - Plasticizer free TPE's
 - High resilience TPE's
 - Extreme outdoor environment resistance
 - USP Class VI
 - Flame retardance (UL)



UNISOFT CUSTOMIZED™

- Customized SBC's for every project need
- For special challenging problems that need to be solved
- Exclusive development



Other USP Products

UNISOFT POLARIC™

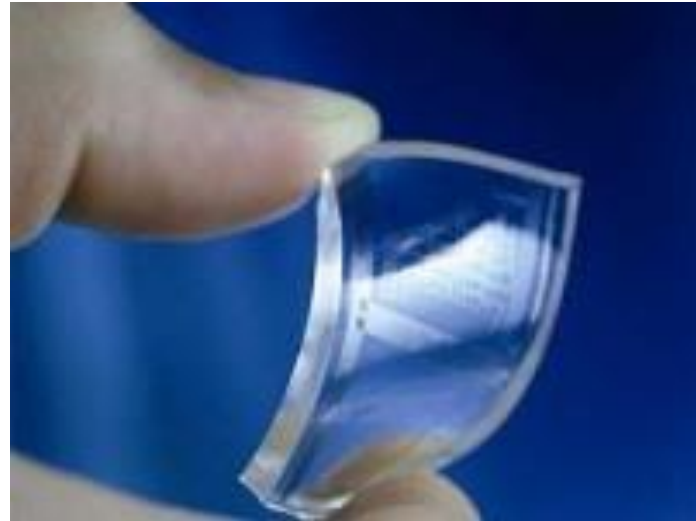
- Acrylic based TPE's
- High clarity and improved lipid resistance
- Wide durometer range
 - 35A to 35D
- Excellent UV resistance
- Adhesion to many different substrates

UNISOFT TOUCH™

- Extreme smooth, dry haptic surface
- Low tackiness
- “Silky” smooth finish
- Wide durometer range
 - 45A and higher
- Improved lipid resistance
- Soft feel

UNILINK TPE-V™

- Cross-linked EPDM/PP material
- Good compression set resistance
- Wide durometer range
 - 45A to 50D
- Natural opaque color



Special Requirements & Needs

FDA

USP VI

NSF

UL

**High
Strength**

**Abrasion
Resistance**

**Pre-
colored**

**Super
Soft**

**Clear
Grades**

**High
Density**

**Low
Friction**

**Chemical
Resistance**

**Higher
Heat**

**Overmold
Adhesion**

**Improved
Cycle
Times**

More

SBC For Medical Applications

- **Properties**

- Very wide durometer range (0A to 90A)
- Bondability and bonding methods can be an issue with standard SBC's
 - Functionalized bondable grades available
- Weak dynamic properties
- Good physical properties
- Lower cost
- Compounded product
 - Many formulation options
- Good for static parts on devices and grips
- Excellent elastomeric properties
- Easily processed

- **Sterilization**

- Gamma – yes
- EtO – yes
- Autoclave – yes but limited

- **Regulatory**

- Can pass USP Class VI and ISO 10993



Thank You !