Properties of Urethane and High Performance Urethane

**Urethane Properties**

- **Heat Resistance**
  - Urethane (Vulkollan®)
  - Temperature up to 120°C
- **Abrasion Resistance**
  - Vulkollan®: 2.5 times higher than general urethane
- **Color**
  - Vulkollan®: Dark brown

**Super Abrasion Resistant Urethane: Vulkollan®**

- Vulkollan® is a super abrasion resistant urethane which is superior to conventional urethanes in abrasion resistance and load bearing.
- It is twice as hard as general urethane and resists the static wear of materials such as rubber and plastic.
- Vulkollan® is also used in high-temperature environments where conventional urethanes would fail.

**Discoloration of Urethane**

- White rubber may experience yellowing as well, which please note.
- No change in physical property or characteristics due to discoloration.

**Abrasion Resistant Urethane**

- Unique composition realized abrasion resistance 2.5 times higher than general urethane at low cost. Color is dark brown.
- It is used as cushioning material, pallet damper, conveyor machine, precision instrument etc, because of its good elongation and shock absorption.

**Rubber Properties / Characteristics of Shock Absorbing Materials**

- **Rubber Properties**
  - Soft: Low Rebound Urethane
  - Hard: High Rebound Urethane

**Abrasion Resistant Urethane / Heat Resistant Urethane Products**

- Washer
- Cushion
- Sheet
- Gasket Products

**Abrasion Resistant Urethane**

- This urethane has greater heat resistance up to 120°C (general urethane withstands up to 70°C).
- Suitable for use in applications where high material strength in high-temperature range is required, such as work receiver for hot air dryer.
- Product color is brown.

**Vulkollan® - Abrasion Resistant Urethane**

- Abrasion resistance of 2.5 times higher than general urethane.
- Unique composition realized abrasion resistance 2.5 times higher than general urethane at low cost. Color is dark brown.

**Features of Low Rebound Urethane / Low Elasticity Rubber (Hanenaito®)**

- Low Rebound Urethane
  - Hanenaito® is a super abrasion resistant urethane, and excels in shock absorptions. With more resistance to compression than general urethane, it is hard to deform. Not suitable for the absorption of large impact energy because its low rebound and elongation are weaker than that of conventional urethane.

- Low Rebound Rubber (Hanenaito®)
  - It is used in cushioning, machine parts, conveyor machinery, precision instrument etc, because of its good elongation and shock absorption.

**Comparison of Shock Absorption of Low Elasticity Rubber - Low Rebound Urethane**

- Material properties and characteristics

**Correlation of hardness and rebound force of shock absorbing materials**

- Soft: Low Rebound Urethane
- Hard: High Rebound Urethane

- Measurement Results:

**Properties of Shock Absorbing Gel**

- Shock absorbing gel is extremely soft gel which has an Asker F hardness. Being an amorphous-bonded synthetic rubber, it has high modulus and high elongation. A major characteristic is the three-dimensional slow recovery, the function to recover after compressive damage and to multiple directions.

- The recovery slowly recovers to the shape in 1 - 2 seconds, after pressed with a golf ball.

- Hardness of the product material is enhanced further and the actual reaction differs to those in the pictures.

**Shock Absorbing Gel**

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**Cushioning Materials**

- Shock Absorbing Gel
- Low Rebound Rubber
- Rubber
- Hardness: Shore A 70
- Specific Gravity: 1.13
- Tensile Strength: 1.16
- Impact: 3.09
- Abrasion: 2.08
- Compression: 1.16
- Color: Brown

**Abrasion Resistant Urethane (Vulkollan®)**

- Abrasion resistant urethane that is far superior to conventional urethanes in abrasion resistance and load bearing.

**Compression of Low Rebound Urethane / Low Elasticity Rubber (Hanenaito®)**

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