SPECIALTY RTP

Technology to Flow Mature Wells

Jay,

I understand you are looking for some information on Abrasion testing of nylon(s) vs. polyethylene and steel. I did a little digging and here is what I found out:

Based on the attached pdf chart and the table below, I would surmise that:

a) a) nylon 6 has a similar Taber abrasion result to Nylon 6-10
b) b) nylon 6's Taber abrasion does not degrade upon equilibrium exposure to humidity in the atmosphere (23C and 50%RH).
c) c) For both nylon 6 and nylon 6-10 the Taber abrasion value is similar to UHMW PE and an order of magnitude better than 304SS steel.

One widely referenced test method is the Taber Abrasion Test, in which the weight loss of a material is measured after being exposed to an abrasive wheel for 1000 cycles. While the Taber test cannot predict actual performance of a material to a given application, it does provide a relative measure to compare materials.
Loadings of 250, 500, and 1000 grams may be used.

TABER ABRASION TESTER

(Abrasion Ring CS-10, Load 1 kg)

Nylon 6-10	5mg/1000 cycles
UHMW PE	5
PVDF	5 - 10
PVC (rigid)	12 - 20
PP	15 - 20
CPVC	20
CTFE	13
PS	40 - 50
Steel (304 SS)	50
ABS	60 - 80
PTFE	500 - 100

Source: Industrial and High Purity Piping Systems

Engineering Handbook, George Fischer +GF+, 2002.

Typical Taber abrasion tests for plastics are DIN 53754 and ASTM D1242 (withdrawn):

DIN 53754, Publication date:1977-06, Testing of plastics; determination of abrasion, abrasive disk method, manuscript, English

WITHDRAWN STANDARD: D1242-95a Standard Test Methods for Resistance of Plastic Materials to Abrasion (Withdrawn 2004)

These test methods (D1242-95a) covers the determination of the resistance to abrasion of flat surfaces of plastic materials, measured in terms of volume loss, by two different types of abrasion-testing machines.

Formerly under the jurisdiction of Committee D20 on Plastics, these test methods (D1242-95A) were withdrawn in December 2003 in accordance with section 10.6.3.1 of the *Regulations Governing ASTM Technical Committees*, which requires that standards shall be updated by the end of the eighth year since the last approval date.

Other Taber Abrasion tests:

ASTM D3389 – Taber abrasion of coated Fabrics

ASTM D4060 – Taber abrasion of organic coatings by weight loss

ASTM D1044 – Haze resulting from Taber abrasion

ASTM D3884 – Taber abrasion of textile fabrics

ASTM D1044 – Taber abrasion of transparent fabrics

Please let me know if you need additional information.

Kind regards,
John