MATERIAL DESCRIPTION

POLYETHYLENE PE	Thermal plastic with a weight mass of approx. 0.92. grams/cm3. Suitable for use in cold areas. emperature range from -73C to +66C. High chemical resistance. FDA approved. Tough yet flexible material with a high impact strength.
POLYPROPYLENE PP	Thermal plastic with a weight mass of approx. 0.92 grams/cm3. Suitable for use in higher temperature areas. Temperature range from +5C to +100C. High chemical resistance. FDA approved. A strong material with a medium tensile strength, low impact strength at low temperatures.
POLYPROPYLENE with 10% TALCUM	Thermal plastic with a weight mass of approx. 0.98 grams/cm3. Suitable for use in high temperature areas. temperature range from +40C to 130C. High chemical resistance. FDA approved. Medium tensile strength, low impact strength at low temperatures.
POLYACETAL (POM)	Thermal plastic wuth a weight mass of approx. 1.4 grams/cm3. Suitable for use in both warm and cold areas. Temperature range from -43C to +95C. Has a limited resistance to certain chemicals.FDA approved. Consistently stable material with a high tensile strength. Low friction between belt and support. Low impact resistance at low temperatures.
NYLON 6	Thermal plastic with a weight mass of approx. 1.08 grams/cm3. Suitable for use in both warm and cold areas. emperature range from -45C to +110C. High chemical resistance. Not suitable in damp areas at high temperatures. FDA approved. ough yet flexible material with a high tensile strength as well as a high impact strength.
SILICONE & TEFLON MATERIAL	An additive added to polyethylene and polypropylene. This material prevents products from freezing or sticking to the belt. FDA approved. The characteristics of the basic material are not changed essentially.

THERMAL EXPANSION/CONTRACTION

All types of materials change dimensions when the temperature changes Therefore you have to take this into consideration, when calculating a belt's dimension and frame construction.

Below are the relevant factors for calculating a NGB conveyor belt.

MATERIAL EXTANSION/CONTRACTION

Material		Extension/contraction mm/m/C
Belt		
Polypropylene	PP	0.12
Polyethylene	PE	0.22
Polyacetal	POM	0.09
Sliding profile		
U and V profile	PE 1000	0.14
Frame material		
Aluminium		0.02
Stainless steel		0.01

FORMULA

E = L x (T2 -T1) x K

C = L x (T2 -T1) x K

E = Extension (mm)

C = Contraction (mm)

L = Length/width of belt (m)

T1 = Normal temperature (21 C)

T2 = Working temperature

K = Coefficient

EXAMPLE

17 MT. long 1345 mm wide PP Normal temp.21C Working temp. 85C.

Length: E = 17 x (85 -21) x 0.12

E = 130.56 mm

Width: E = 1.345 x (85 -21) x 0.12

E = 10.33 mm

SERVICE FACTOR (SF)

No load starts & load applied gradually	1.0
Frequent starts under load, more than 1/hr	+0.2
Belt speed greater than 30 mtr./min.	+0.2
Elevating conveyors	+0.4
Pusher conveyors	+0.2

COEFFICIENT OF START-UP FRICTION BETWEEN WEARSTRIP AND BELT

W earstrip material	Belt material							
	Polypropylene				Polyethylene		Acetal POM	
	Smooth		Abrasive		Smooth		Smooth	
	W et	Dry	W et	Dry	W et	Dry	W et	Dry
PEHD	0.09	0.11	-	-	-	-	0.08	0.09
Steel	0.26	0.26	0.31	0.31	0.14	0.15	0.18	0.19

COEFFICIENT OF FRICTION BETWEEN PRODUCT AND BELT

Material	Polypropylene		Polyethylene		Acetal POM	
	Smooth		Smooth		Smooth	
	W et	Dry	W et	Dry	W et	Dry
Glass	0.18	0.19	0.08	0.09	0.13	0.14
Metal	0.26	0.32	0.10	0.13	0.19	0.20
Plastic	0.11	0.17	0.08	0.08	0.13	0.15
Cardboard	-	0.21	-	0.15	-	0.13

THE CHEMICAL RESISTANCE OF PLASTIC MATERIALS

The values in the following tables are guideline values. Factors such as filling material, temperatures, concentrations, stress, stress time etc. can alter these values dramatically. Therefore no guarantee can be given for the correctness of said values. The values are vaid at an ambient temperature of 20 ∞C, and unless otherwise stated, with strong concentrations.

PLASTIC MATERIAL

Vehicle	%	POM	PE	PP
Acetaldehyde	40	+	+	+
Acetic acid	10	+/-	+	+
Acetic acid	80	-	+	+
Acetone	100	+	+	+
Alcohol		+	+	+
Allyl alcohol	100	+	+	+
Aluminium chloride	10	+	+	+
Ammonia water	10	+	+	+
Ammonium chloride		+	+	+
Aniline	100	+	+	+
Benzene	100	+	+	-
Benzyl alcohol	100	+	+	+
Boiled salt-				
cf. sodium chloride				
Boracic acid	10	+	+	+
Bromine acid	50	-	+	+
Batanol	100	+	+	+
Butyl acetate	100	+	+	-
Calcium carbonate		+	+	+
Calcium chloride -				
aqueous	10	+	+	+
Calcium chloride -				
with sprit	20	+	+	+
Calcium hydroxide		+	+	+
Calcium carbonate -				
Carbon dioxide		+	+	+
Caustic potash soln	10	+	+	+
Caustic potash soln	50	+	+	+
Cellulose acetate		+	+	+
Citric acid	10	+	+	+
Chalk cf. -				
carbon disulphide	100	+	+	+
Chlorine gas	100	-	+	-
Chlorine water		-	+	+
Chloro-benzene	100	+	+	+
Chloroform	100	-	-	+
Chrome acid	10	-	-	+

EXPLANATION OF SYMBOLS

+ resistant

None or only negligible in weight (<0.5%)
No changes in mechanical characteristics.

+/- qualified resistance

After a period of time, significant changes in weight and mass (0.5 – 5.0%).
Possible discoloration and reduction in strength and ductility.
Qualified usability, though only when dealing with simple material requirements.

- inconstant

It is rapidly subjected to serious attack, and changes in weight and mass (>5%), and critical in strength and ductility. Not recommended for use.

% concentration

If value is given it is because no test results are available from our suppliers.