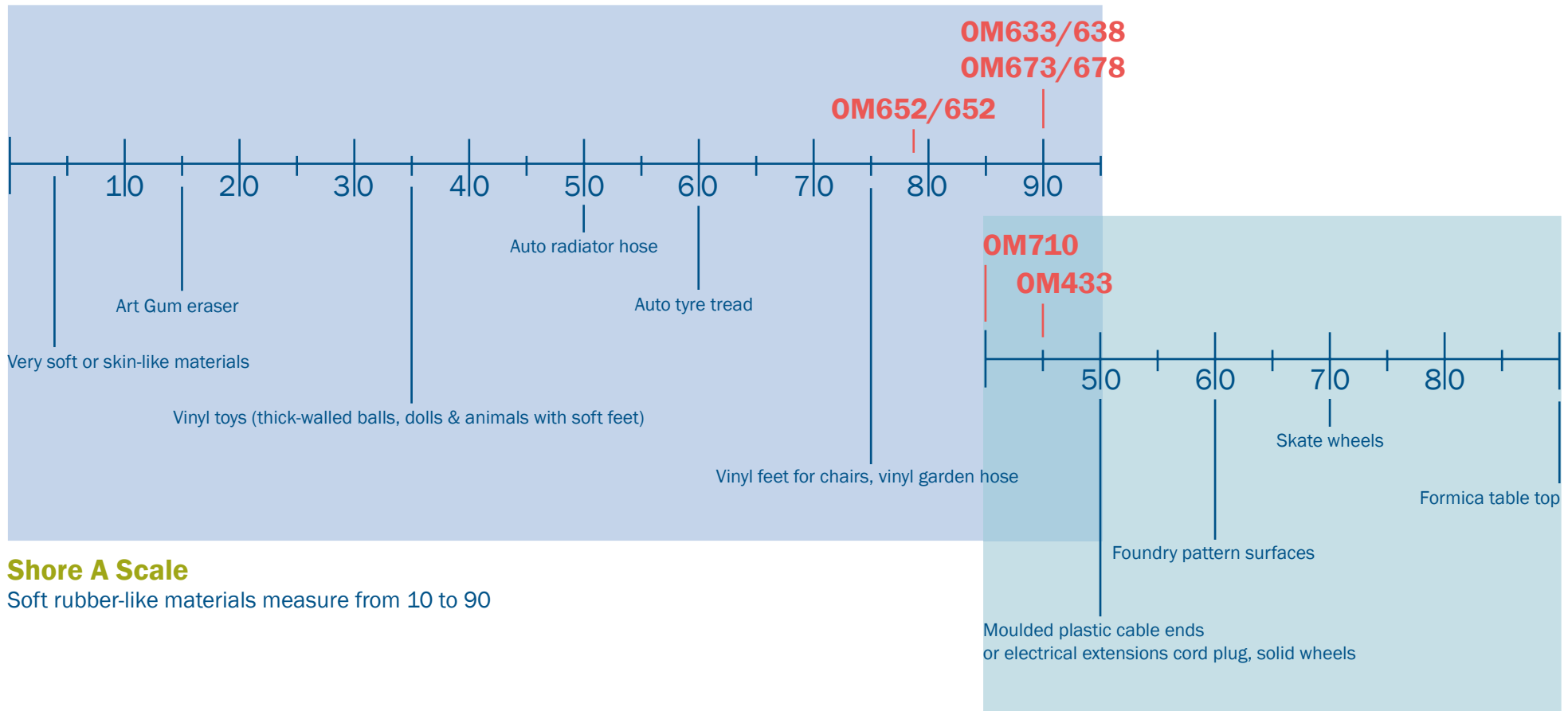


MACROMELT COMPARATIVE HARDNESS



Shore A Scale

Soft rubber-like materials measure from 10 to 90

Shore D Scale

Hard rubber-like materials measure from 40 to 95

MACROMELT MATERIAL PROPERTIES



Properties	Standard	Macromelt® OM 652/657	Macromelt® OM 633/638	Macromelt® OM 673/678	Macromelt® OM 710	Macroform® OM 433
Colour		Amber/Black	Amber/Black	Amber/Black	Amber	Black
Chemical Base		Polyamide	Polyamide	Polyamide	Polyamide	Polyurethane
Thermal Properties						
Application temperature [°C]	Dependent on the project	-40 / +100	-40 / +130	-40 / +140	-20 / +140	-40 / +140
Glass transition temperature [°C]	DSC 2. Lauf	-45	-36	-45	-10	-
Cold flexibility [°C]	ASTM D3111	-50	-30	-40	-20	<-50
Temperature stablensess [°C]	Henkel Methode HM 11	125	155	165	160	-
Softening point [°C]	ASTM E 28	155	175	185	170	-
Injection temperature [°C]		180-230	200-240	210-240	200-240	130-180
Thermal expansion coefficient [1/K]	PVT (50-80)°C	5x10 ⁻⁴	5x10 ⁻⁴	5x10 ⁻⁴	-	-
Flammability	UL 94	V0	V0	V0	-	-
Mechanical Properties						
Density [g/cm ³]	DIN 53479	0,98	0,98	0,98	1,07	1,1
Shore-A-hardness	DIN 53505	77	90	90	-	-
Shore-D-hardness		-	-	-	40	45
Tensile stress at yield [N/mm ²]	DIN 53455	2,6	4,5	5,1	4,5	10
Tensile strength at rupture [N/mm ²]		2,7	5,2	5,6	26	12
Elongation at rupture [%]		400	400	400	600	800
Electrical Properties						
Dielectric constant [1kHz]	VDE 0303 Teil 4	5-7	5-7	5-7	-	-
Volume resistivity [Ωcm]	VDE 0303 Teil 3	10 ¹²	10 ¹³	10 ¹²	-	10 ¹⁵
Dielectric strength [kV/mm]	VDE 0303 Teil 2	~20	~20	~20	24	24
Application Properties						
Viscosity at 180 °C [mPa s]	ASTM D 3236	9500/8600	-	-	-	12.000 @ 130 °C
Viscosity at 190 °C [mPa s]		7000/6500	-	-	-	
Viscosity at 200 °C [mPa s]		5400/4900	5000	-	19000	
Viscosity at 210 °C [mPa s]		4100/3700	3700	3000/3300	13000	
Viscosity at 220 °C [mPa s]		-	2900	2200/2500	9000	
Viscosity at 230 °C [mPa s]		-	2300	1600/1900	6100	
Injection temperature [°C]			180-230	200-240	210-240	200-240
Water Absorption						
Water Absorption	DIN 53495; 24 h, RT	1,4	1,0	1,0	5,0	0,25
	DIN 53495; 72 h, 85 °C	4,8	4,5	4,0	-	5,0

Information provided herein is based upon our practical knowledge and experience. Due to different materials used as well as to varying work conditions which are beyond our control we strictly recommend to carry out intensive trials as well as consultation of our technical personnel. Any warranty and/or liability shall not be derived from above information.

MACROMELT MATERIAL RESISTANCE



Material	Test Conditions	Macromelt® OM 652/657	Macromelt® OM 633/638	Macromelt® OM 673/678	Macromelt® OM 710	Macroform® OM 433
Motoroil, Syntetic Mobil 1 OW-40	24 h, RT	+++++	+++++	+++++	+++++	+++++
	28 d, RT	+++	+++	+++	+++++	+++++
	24 h, 80 °C	+++	+++	+++	+++++	+
	28 d, 80 °C	+	+	+	+++++	-
Motoroil 15W40, Texaco Havoline Formula 3	24 h, RT	+++++	+++++	+++++	+++++	+++++
	28 d, RT	+++	+++	+++	+++++	+++++
	24 h, 80 °C	+++	+++	+++	+++++	+
	28 d, 80 °C	+	+	+	+++	-
Transmission oil ATF, Ravenol	24 h, RT	+++	+++	+++	+++++	+++++
	28 d, RT	+++	+++	+++	+++++	+++++
	24 h, 80 °C	+	+++	+++	+++++	+
	28 d, 80 °C	+	+	+	+++++	-
Transmission oil 90GL4, Ravenol	24 h, RT	+++++	+++++	+++++	+++++	+++++
	28 d, RT	+++	+++	+++	+++++	+++++
	24 h, 80 °C	+++	+++	+++	+++++	+
	28 d, 80 °C	+	+++	+++	+++++	-
DOT 4 brake fluid, Allied Signal, Bendix new-lock 2001	24 h, RT	+	+++	+++	+++	+++++
	28 d, RT	-	+	+	+	+++
	24 h, 80 °C	-	-	-	-	+
	28 d, 80 °C	-	-	-	-	+
Wicos-VA (cutting oil)	5 d, RT	+++	+++	+++	+++++	+++++
ATF Dexron (automatic oil)		+++	+++	+++	+++++	+++++
Avilub Metacon Blue (cooling fluid)		+++	+++	+++	+	+++
Paraffin		+++	+++	+++	+++	+++
Toluene		-	-	-	-	-
Acetone		-	-	-	-	+
Spirit		-	-	-	-	+++
Petrol		+++	+++	+++	+++++	+++++
BP multipurpose fat L2	1 h, RT	+++	+++	+++	+++++	+++++
Renault Typ C (cooling fluid, 50 % H ₂ O)	1 h, 80 °C	+++	+++	+++	+	+++
Diesel		+++	+++	+++	+++	+++
Wicos-VA (Cutting oil)		+++	+++	+++	+++++	+++
ATF Dexron (Automatic oil)		+++	+++	+++	+++++	+++
Lockheed 55 (brake fluid)	Immersion 3 min at 80 °C, drying 27 min at RT, 20 cycles	+++	+++	+++	+++	+++
Citroen LHM (brake fluid)		+++	+++	+++	+++	+++
Methanol		+	+	+	+	+++
Diesel	Immersion 3 min at RT, drying 27 min at RT, 20 cycles	+++	+++	+++	+++	+++++

Information provided herein is based upon our practical knowledge and experience. Due to different materials used as well as to varying work conditions which are beyond our control we strictly recommend to carry out intensive trials as well as consultation of our technical personnel. Any warranty and/or liability shall not be derived from above information.

Resistance Guide

+++++ Extremely good +++ Good + Adequate - Not resistant

Material	Treatment	Macromelt® OM 652/657	Macromelt® OM 633/638	Macromelt® OM 673/678	Macromelt® OM 710	Macroform® OM 433
PVC	-	++++	+++	+++	+++++	+++++
PA 6.6	-	++++	++	+	+	+
PC	-	+++	++	+	+	+++
ABS	-	+++	++	+	+	+++
PBT	-	+++	+	+	+	+
PES	-	+++	+++	++	+	+
PEI	-	+++	+++	++	+	++
PUR	-	+++	+++	++	+	+++++
PE crosslinked (radiation)	Without Corona	++	+	+	+	+
	With Corona	+++	+++	+++	+	+++
Steel	RT	+	+	+	+	+
	Preheating	+++	+++	+++	+	+++

Information provided herein is based upon our practical knowledge and experience. Due to different materials used as well as to varying work conditions which are beyond our control we strictly recommend to carry out intensive trials as well as consultation of our technical personnel. Any warranty and/or liability shall not be derived from above information.

Adhesion Guide

+++++ Extremely good ++++ Very good +++ Good ++ Satisfying + Adequate