



Material Technologies

For Rubber, Plastics, Adhesives, Sealants & Specialty Coatings

ALBEMARLE

SAYTEX® Brominated FR

ARLANXEO KELTAN KSA

PERFORMANCE POLYMERS

EPDM Ethylene-Propylene Rubber

BIRLA CARBON

ASTM Carbon Blacks

EP Enhanced Performance Carbon Black

ULTRA® Rubber Blacks

BRUGGEMANN

TP 1862 Resorcinol and cobalt replacement

LP 21-003 Resorcinol-free HMMM

replacement with reduced formaldehyde

CENOSTAR CORPORATION

CENOSPHERES

GLASS BUBBLES

CHASE CORPORATION

DUALITE® E Polymeric Microspheres

DUALITE® U Polymeric Microspheres

CHEM-TREND

MONO-COAT® Mold Release Agents

CHEM-TREND PM® Mold Release Agents

IPMC-1200 Mold Cleaner

CNG FILMS

Cast Embossed PE Films

DOW CHEMICAL

MOR-FLOCK® Flocking Adhesives

DRASNER

LOMEL® Low Melt Batch Inclusion Bags

DUPONT

THIXON® Solvent-Based Adhesives

MEGUM® Solvent Based Adhesives

MEGUM W® Water-Based Adhesives

ELKEM MATERIALS

SIDISTAR® Silicon Dioxide

EVERHARD®

EVERHARD® Roller & Stitchers

GLASSVEN

RUBBERSIL® Precipitated Silica

RUBBERSIL® Sodium Aluminosilicate

H&R GROUP, US, INC.

Tudalen® Paraffinic Oils

Tudalen® Aromatic Oils

HEXPOL COMPOUNDING

PROFLEX® NBR/PVC

HOLLAND COLOURS

Holcosil® LSR & RTV Silicone Colorant

LAWTER, INC.

FILTREZ® Resins

Modified Maleic Resin

MARTIN MARIETTA

ELASTOMAG® Magnesium Oxide

MAGSHIELD® Magnesium Hydroxide

MINMETALS, Inc. (L.A.)

BRIGHTSUN® Antimony Oxide

NORAC

NORSTAB® Ca/Zn Heat Stabilizers

COAD® Metallic Stearates

LIGOPHOB Sodium Soaps

LIGOSTAR Metallic Soaps

Ester Lubricants & Blends

NOURYON POLYMER CATALYST

PERKADOX® Organic Peroxides

TRIGONOX® Organic Peroxides

KETJENBLACK® Conductive Carbon Black

NOURYON - Expancel Microspheres

Expancel Blowing Agents

OCSIAL LLC

TUBALL™ MATRIX graphene nanotubes

PAMPA ENERGIA

Arpol® SBR

PERFORMANCE CHEMICALS, LLC

CALZIN® Strip & Slab Dip

POLYOLS & POLYMERS, PVT. LTD.

Curing & Tackifying Phenolic Resins

Ketonic Resins

Maleic Resins

Polyamide Resins

RAIN CARBON, INC.

NOVARES® C9 Hydrocarbon Resins

NOVARES PURE® Hydrogenated Aromatic

Hydrocarbon Resin

NOVARES® C-I Resins

NOVARES® Liquid Modifying Resins

RUETASOLV® High Boiling Point Solvent

RENKERT OIL

CHEVRON Paramount Paraffinic

Process Oils

RJ MARSHALL

H-TEC™ ATH

C-TEC™ Zinc Stannate

C-TEC™ Zinc Borate

ROYAL

ARAMID BLEND – ROY-TUFF™

RHEOMETER Test Film

ROY CAL H Ground Oyster Shell

RUBBERMAKERS Sulfur

ROYAL BRANDED CLAYS-HARD & SOFT

SAN JUAQUIN REFINING

RAFFEX® Aromatic Process Oils

RAFFEN E® Napthenic Process Oils

HYNAP® Hydrotreated Napthenic Oils

SHIRAIISHI CALCIUM

VISCOLITE® Precipitated Calcium Carbonate

HAKUENKA® Precipitated Calcium Carbonate

VISCOEXCEL® Precipitated Calcium Carbonate

WHITON JP® Food Grade PCC

SIGMA GROUP (Omega)

Smooth Blown PE Film

SONNEBORN

SONNEBORN® Petrolatum

SPECIALTY MINERALS

Dry & Wet Ground Calcium Carbonate

THE INTERNATIONAL GROUP

IGI Paraffin Wax

TOKUYAMA

REOLOSIL® Fumed Silica

TORAY

THIOLKOL® Liquid Polysulfide

CTPI® Cure Retarder

TRANSCONTINENTAL PACKAGING

DARTEK® Cure Wrap Tape

DARTEK® Composite Film

TRI-Iso TRYLINE

Titanium Dioxide

TRM MANUFACTURING

Blown Smooth PE Film

WACKER CHEMICAL CORPORATION

ELASTOSIL® HCR Solid Silicone Rubber

ELASTOSIL® LSR Liquid Silicone Rubber

ELASTOSIL® RTV 2 Silicone Rubber

SILPURAN® Medical Grade Silicone

ZOCHEM, INC.

ZOCO USP Zinc Oxide

ZOCO Tech Grade Zinc Oxide

PARTICLE SIZE CONVERSION TABLE					
SEIVE MESH ¹	MICRON	MILLI-METER	INCH	MIL	HEGMAN FINENESS ²
	0.0	0.000	0.0000	0.00	8.0
	6.4	0.006	0.0003	0.25	7.5
1200	10.2	0.010	0.0004	0.40	
	12.7	0.127	0.0005	0.50	7.0
	19.1	0.019	0.0008	0.75	6.5
625	20.3	0.020	0.0008	0.80	
	25.4	0.025	0.0010	1.00	6.0
	30.5	0.031	0.0012	1.20	
	31.8	0.032	0.0125	1.25	5.5
400	38.1	0.038	0.0015	1.50	5.0
	40.6	0.041	0.0016	1.60	
325	44.5	0.045	0.0018	1.75	4.5
	50.8	0.051	0.0020	2.00	4.0
270	53.3	0.053	0.0021	2.10	
	57.2	0.057	0.0023	2.25	3.5
230	61.0	0.061	0.0024	2.40	
	63.5	0.064	0.0025	2.50	3.0
	69.9	0.070	0.0028	2.75	2.5
	71.1	0.071	0.0028	2.80	
200	73.7	0.074	0.0029	2.90	
	76.2	0.076	0.0030	3.00	2.0
	81.3	0.081	0.0032	3.20	
	82.6	0.083	0.0033	3.25	1.5
170	88.9	0.089	0.0035	3.50	1.0
	95.3	0.095	0.0038	3.75	0.5
140	101.6	0.102	0.0040	4.00	0.0
120	125.0	0.125	0.0049	4.90	
100	149.0	0.149	0.0059	5.90	
80	177.0	0.177	0.0070	7.00	
70	210.0	0.210	0.0083	8.30	

1) STANDARD SIEVE MESH: ASTM E.11-81/ISO565. The sieve numbers are the approximate number of openings per linear inch.
2) HEGMAN FINENESS: ASTM D1210-96. Fineness of dispersion of pigment-vehicle systems by Hegman-type gage.

SIZE & SCALE			
NAME	SYMBOL	VALUE	EQUIVALENT (in METERS)
picometer	pm	10 ⁻¹²	0.000 000 000 001
nanometer	nm	10 ⁻⁹	0.000 000 001
micrometer	µm	10 ⁻⁶	0.000 001
millimeter	mm	10 ⁻³	0.001
centimeter	cm	10 ⁻²	0.01
decimeter	dm	10 ⁻¹	0.1
meter	m	1	1
decameter	dam	10	10
hectometer	hm	10 ²	100
kilometer	km	10 ³	1 000
megameter	Mm	10 ⁶	1 000 000
gigameter	Gm	10 ⁹	1 000 000 000
tetrameter	Tm	10 ¹²	1 000 000 000 000

CONVERSION FORMULAS

Mass

1 Metric Ton (t) =	2204.6 pounds	lb
1 Metric Ton (t) =	1000 kilograms	kg
1 kilogram (kg) =	2.205 pounds	lb
1 pound (lb) =	0.454 kilograms	kg
1 Short Ton (tn) =	2,000 pounds	lb

Length

1 meter (m) =	39 37 inches	in
1 meter (m) =	3.281 feet	ft
1 mil (mil)	25.4 micron	µm

Temperature

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) / 1.8$$

$$^{\circ}\text{F} = (^{\circ}\text{C} * 1.8) + 32$$

SPECIFIC GRAVITY/DENSITY CONVERSION

	g/cc	kg/m ³	lbs/gal	lbs/cu-ft
g/cc	1	1000	8.3454	62.43
kg/m ³	0.0010	1	0.0083	0.0624
lbs/gal	0.1198	119.83	1	7.4805
lbs/cu-ft	0.0160	16.018	0.1337	1
	g/cc	kg/m³	lbs/gal	lbs/cu-ft

Read across, then down. Example, 1 g/cc (red column) = 1000 (2nd numeric column) kg/m³ (blue bottom header). NOTE: cm³ = g/cc

HARDNESS SCALES COMPARISON

SHORE A	20	30	40	50	60	70	80	90	95									
SHORE D								45	55	65	75	85						
ROCKWELL R									50	70	90	100	110	110	120	130	140	150

POLYMERS	
by Decreasing Polarity	
Polymer	Abbr.
MORE POLAR	
Nylon	PA
Polysulfide	T
Polyurethane	PU
Nitrile (High ACN)	NBR
Epoxy	EP
Polycarbonate	PC
Polyvinyle Acetate	PVA
Nitrile (Med ACN)	NBR
Acrylic Rubber	ACM
Epichlorihydrin	ECO
Chlorosulfonated	CSM
Polyvinyl Chloride	PVC
Polystyrene	PS
Polychloroprene	CR
Nitrile (Low ACN)	NBR
Chlorinated PE	CPE
Styrene-Butadiene Rubber	SBR
Polybutadiene	BR
Natural Rubber	NR
Halo Butyl	HIIR
Ethylene-Propylene Diene	EPDM
Ethylene-Propylene Rubber	EPR
Butyl Rubber	IIR
Fluoroelastomer	FKM
Silicone	Q
LESS POLAR	

TEMP	
°C	°F
538	1000
500	932
482	900
475	887
450	842
427	800
425	797
400	752
375	707
371	700
350	662
325	617
316	600
300	572
275	527
260	500
250	482
232	450
225	437
204	400
200	392
191	375
177	350
175	347
163	325
150	302
149	300
135	275
125	257
121	250
100	212
38	100
21	70
10	50
0	32
-4	25
-10	14
-12	10
-18	0
-25	-13
-32	-25
-46	-50
-50	-58
-73	-100
-100	-148
-157	-250
-200	-328
-273	-460