

***WHAT EVERY CHEMICAL  
TECHNOLOGIST WANTS TO  
KNOW ABOUT...***

***Volume V***

***RESINS***

***Compiled by  
Michael and Irene Ash***

***Chemical Publishing Co., Inc.  
New York, N.Y.***

## **Resins, Volume 5**

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## ***PREFACE***

This reference book is the fifth volume in the set of books entitled **WHAT EVERY CHEMICAL TECHNOLOGIST WANTS TO KNOW . . . SERIES**. This compendium serves a unique function for those involved in the chemical industry—it provides the necessary information for making the decision as to which trademark chemical product is most suitable for a particular application.

The chemicals included in this fifth book of the series are resins, however, complete cross-referencing is provided for the multiple functions or classification of all the chemicals.

The first section which is the major portion of each volume contains the most common generic name of the chemicals as the main entry. All these generic entries are in alphabetical order. Synonyms for these chemicals are then listed. The CTFA name appears alongside the appropriate generic name. The structural and/or molecular formula of the chemical is listed whenever possible. The generic chemical is sold under various tradenames and these are listed here in alphabetical order for ease of reference along with their manufacturer in parentheses. *Modifications/Specialty Grades* lists those tradenames that contain or omit additives so that they are used for a variety of specialty purposes. The *Category* subheading classifies the resin by thermoplastic and/or thermoset types. The *Processing* category lists the tradenames that have been formulated to be used for specific or generalized plastics processing. Because of differences in form, activity, etc., individual tradenames of the generic chemical are used in particular applications more frequently. These are delineated in the *Applications* section. The differences in properties, toxicity/handling, storage/handling, and standard packaging are specified in the subsequent sections wherever distinguishing characteristics are known.

The second section of the volume **TRADENAME PRODUCTS AND GENERIC EQUIVALENTS** helps the user who only knows a chemical by one tradename to locate its main entry in section 1. The user can look up this tradename in this section of the book and be referred to the appropriate, main-entry, generic chemical name.

The third section **GENERIC CHEMICAL SYNONYMS AND CROSS REFERENCES** provides a way of locating the main entries by knowing only one of the synonyms. If the generic chemical is not in the volume, it will refer you to the volume in which it is contained.

The fourth section TRADENAME PRODUCT MANUFACTURERS lists the full addresses of the companies that manufacture or distribute the tradename products found in the first section.

The following is a list of the six volumes that comprise this series:

Volume I	Emulsifiers and Wetting Agents
Volume II	Dispersants, Solvents and Solubilizers
Volume III	Plasticizers, Stabilizers and Thickeners
Volume IV	Conditioners, Emollients and Lubricants
Volume V	Resins
Volume VI	Polymers and Plastics

This series has been made possible through long hours of research and compilation and the dedication and tireless efforts of Roberta Dakan who helped make this distinctive series possible. Our appreciation is extended to all the chemical manufacturers and distributors who supplied the technical information.

M. and I. Ash

### **NOTE**

The information contained in this series is accurate to the best of our knowledge; however, no liability will be assumed by the publisher for the correctness or comprehensiveness of such information. The determination of the suitability of any of the products for prospective use is the responsibility of the user. It is herewith recommended that those who plan to use any of the products referenced seek the manufacturer's instructions for the handling of that particular chemical.

### **OTHER BOOKS BY MICHAEL AND IRENE ASH**

A Formulary of Paints and Other Coatings, Volumes I and II  
A Formulary of Detergents and Other Cleaning Agents  
A Formulary of Adhesives and Sealants  
A Formulary of Cosmetic Preparations  
The Thesaurus of Chemical Products, Volumes I and II  
Encyclopedia of Industrial Chemical Additives, Volumes I–IV  
Encyclopedia of Surfactants, Volumes I–IV  
Encyclopedia of Plastics, Polymers and Resins, Volumes I–IV  
What Every Chemical Technologist Wants to Know About. . .  
    Volume I—Emulsifiers and Wetting Agents  
    Volume II—Dispersants, Solvents and Solubilizers  
    Volume III—Plasticizers, Stabilizers and Thickeners  
    Volume IV—Conditioners, Emollients, and Lubricants  
Chemical Products Desk Reference

## **ABBREVIATIONS**

@	..... at
anhyd.	..... anhydrous
APHA	..... American Public Health Association
approx.	..... approximately
aq.	..... aqueous
ASTM	..... American Society for Testing and Materials
avg.	..... average
B.P.	..... boiling point
Btu	..... British thermal unit
C	..... degrees Centigrade
CAS	..... Chemical Abstracts Service
cc	..... cubic centimeter(s)
CC	..... closed cup
cm	..... centimeter(s)
cm <sup>3</sup>	..... cubic centimeter(s)
COC	..... Cleveland Open Cup
compd.	..... compound, compounded
conc.	..... concentrated, concentration
cP, cps	..... centipoise
cs, cSt	..... centistokes
CTFA	..... Cosmetic, Toiletry and Fragrance Association
DEA	..... diethanolamine
disp	..... dispersible, dispersion
dist	..... distilled
DOT	..... Department of Transportation
DW	..... distilled water
EO	..... ethylene oxide
equiv.	..... equivalent
F	..... degrees Fahrenheit
F.P.	..... freezing point
FDA	..... Food and Drug Administration
ft <sup>3</sup>	..... cubic foot, cubic feet
g	..... gram(s)
gal	..... gallon(s)
HLB	..... hydrophile-lipophile balance
insol.	..... insoluble
IPA	..... isopropyl alcohol
kg	..... kilogram(s)
l, L	..... liter(s)
lb	..... pound(s)
M.P.	..... melting point
M.W.	..... molecular weight
max	..... maximum
MEA	..... monoethanolamine
MEK	..... methyl ethyl ketone
mfg.	..... manufacture
MIBK	..... methyl isobutyl ketone
min	..... minute(s)
min.	..... mineral, minimum
MIPA	..... monoisopropanolamine

misc.	miscible
ml	milliliter(s)
mm	millimeter(s)
NF	National Formulary
no.	number
o/w	oil-in-water
OC	open crucible
PEG	polyethylene glycol
pH	hydrogen-ion concentration
pkgs	packages
PMCC	Pensky Marten closed cup
POE	polyoxyethylene, polyoxyethylated
POP	polyoxypropylene
PPG	polypropylene glycol
pt.	point
R&B	Ring & Ball
RD	Recognized Disclosure
ref.	refractive
rpm	revolutions per minute
R.T.	room temperature
s	second(s)
sol.	soluble, solubility
sol'n.	solution
sp.gr.	specific gravity
SS	stainless steel
std.	standard
SUS	Saybolt Universal seconds
TCC	Taggart closed cup
TEA	triethanolamine
tech.	technical
temp.	temperature
theoret.	theoretical
TLV	threshold limit value
TOC	Taggart open cup
UL	Underwriter's Laboratory
USP	United States Pharmacopoeia
uv, UV	ultraviolet
veg	vegetable
visc.	viscosity, viscous
w/o	water-in-oil
wt	weight
≈	approximately equal to
<	less than
>	greater than
≤	less than or equal to
≥	greater than or equal to



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## *ABS resin*

### **SYNONYMS:**

Acrylonitrile-butadiene-styrene resin

### **TRADENAME EQUIVALENTS:**

ABS 124ESG, 124ESGE, 125M, 224M, 236F, 236MA, 236R, 301K, 323MA, 400P, 410ESG, 414MA, 420A, 424ESM, 500FR-1, 504ESG, 506ESG, 510EC, 522ESM, 550ES, 606ED, 707H, 707K, 808K, 910K [Mobil]

Abson 010, 042, 110, 120, 130, 135, 140, 161, 171 [Mobay]

Bapolan 8445, 8635, 8640 [Bamberger]

Cycolac AR, CG, CGA, CTB, DFA-R, DH, EP-3510, EPB-3570, ETS-3540, FBK, GSE, GSM, GT, HM, KGA, KJB, KJM, KJT, KJU, KJW, L, LS, LXB, SF, T, TA, X-11, X-15, X-17, X-37, Z36, Z48, Z86, ZA2, ZA4, ZA7, ZB2, ZB6, ZC7 [Borg-Warner]

Dow ABS 213, 350, 500, PG912, PG940 Resin [Dow]

Lucky ABS HF-350, HF-380, HI-100, HI-121, HI-151, HR-420, HR-450, MP-211, RS-600, SH-610 [Standard Polymers]

Lustran ABS 248, 252, 448, 452, 456, 545, 648, 743, 750-10802, 752, 780-10802, 782-10846, 860, 865, 1152, -HR850, -HR851, PG-298, PG-299, PG-300, FR ABS911, FR ABS914HM, FR ABS921UV, Ultra ABS HX, MX [Monsanto]

Magnum ABS 213, 341, 343, 545, 941, 4500UV, 9010, 9020, 9030, 9408, 9450P, CLR95, FG960 [Dow]

Novodur HGV, P2T, P2T-AT, PH-AT, PHE, PK, PK-AT, PKT, PL-AT, PLT-AT, PM, PM3C, PM5C, PM-AT, PME, PMT, PMT-AT, PTE, PX [Bayer AG]

PDX-84357 [LNP]

### **Carbon-Reinforced:**

Stat-Kon AC-1003 (15% carbon fiber) [LNP]

### **Glass-Reinforced:**

ABS-G1FG-2 (20% glass) [Washington Penn]

## ***ABS resin (cont' d.)***

AS-10GF (10% glass fiber), -20GF (20% glass fiber), -30GF (30% glass fiber), -40GF (40% glass fiber) [Compounding Technology]

Cycolac KGA [Borg-Warner]

Novodur PHGV (17% glass fiber), PHGV-AT (17% glass fiber) [Bayer AG]

RTP 601 (10% glass fiber), 603 (20% glass fiber), 605 (30% glass fiber), 607 (40% glass fiber) [Fiberite]

Thermocomp AF-1004 (20% glass fiber), AF-1006 (30% glass fiber), AF-1008 (40% glass fiber) [LNP]

### **ABS-stainless steel composite:**

PDX-84357 [LNP]

### **MODIFICATIONS/SPECIALTY GRADES:**

#### **Flame Retardant:**

ABS 500 FR-1; Abson 010, 042; Cycolac FBK, KGA, KJB, KJM, KJT, KJU, KJW, Z86, ZC7; Lustran ABS 860, 865, FR ABS911, FR ABS914HM, FR ABS921UV; Magnum ABS 4500UV; PDX-84357

#### **Heat Resistant:**

Bapolan 8445; Cycolac X-11, X-15, X-17, X-37, Z36, Z48; Lucky ABS HR-420, HR-450; Lustran ABS-HR850, HR851; Magnum ABS 4500UV, ABS 9048

#### **High Flow:**

ABS 125M, 707H; Abson 135; Cycolac DFA-R, EP-3510, FBK, GT, T, TA; Dow ABS 213; Lucky ABS HF-350, HF-380; Novodur PL-AT, PLT-AT

#### **High Impact:**

ABS 236F, 323MA, 301K, 420A, 500FR-1, 504ESG, 506ESG, 522ESM, 550ES, 606ED, 808K; Abson 135, 161, 171; Bapolan 8445, 8635, 8640; Cycolac CG, CGA, EP-3510, ETS-3540, GSE, GSM, HM, L, LS, LXB, T, ZA2, ZB2, ZB6; Dow ABS PG940 Resin; Lucky ABS HI-100, HI-121, HI-151, MP-211, SH-610; Lustran ABS 448, 648, 743, 750-10802, 752, 780-10802, 782-10846, 115, PG-298, PG-300, Ultra ABS HX; Magnum ABS 545, 941, 4500UV, 9020, 9030

#### **High Gloss:**

ABS 414MA, 504ESG, 506ESG, 808K; Abson 042, 110, 120, 130, 135, 140, 161; Cycolac GSE, GT, LS, T; Dow ABS 350 Resin; Lucky ABS HI-151; Lustran ABS 248, 252, 448, 452, 545, 648, 752, -HR850, -HR851, Ultra ABS HX, MX; Magnum ABS 941, 9010, 9020, 9030

#### **Semigloss:**

ABS 124ESGE, 400P, 410ESG, 707K

#### **Medium Gloss:**

Lustran ABS 1152

#### **Satin Gloss:**

Abson 010

#### **Low Gloss:**

ABS 224M; Cycolac CG, CGA, ZA4, ZA7, ZB2; Magnum ABS 213, 341, 343, 545

#### **Matte Finish:**

ABS 420A, 424ESM, 522ESM; Dow ABS 213; Lustran ABS 456

## *ABS resin (cont' d.)*

### **Plateable Grade:**

ABS 910K; Cypolac EP-3510, EPB-3570, ETS-3540; Lucky ABS MP-211; Lustran ABS PG-298, PG-299, PG-300; Magnum ABS 9450P; Novodur PM3C, PM5C

### **CATEGORY:**

Thermoplastic resin

### **PROCESSING:**

#### **Extrusion:**

ABS 124ESGE, 236MA, 410ESG, 420A, 424ESM, 504ESG, 506ESG, 510EC, 522ESM, 550ES, 606ED; Abson 171; Bapolan 8635; Cypolac CG, CGA, GSE, LS, SF, Z-36; Dow ABS 213, 350, 500, PG912, PG940 Resin; Lucky ABS HI-100, HI-121, RS-600, SH-610; Lustran ABS 252, 452, 456, 545, 752, 780-10802, 782-10846, 860, 865, 1152; Magnum ABSFG960; Novodur HG V, PHE, PK, PME, PTE

#### **Injection Molding:**

ABS 124ESG, 125M, 224M, 236F, 236R, 301K, 323MA, 400P, 414MA, 500FR-1, 707H, 707K, 808K; ABS-G1FG-2; Abson 010, 042, 110, 120, 130, 135, 140, 161; AS-10GF, -20GF, -30GF, -40GF; Bapolan 8445, 8635, 8640; Cypolac AR, CTB, DFA-R, DH, FBK, GSM, GT, HM, KGA, KJB, KJM, KJT, KJU, KJW, L, LXB, T, TA, X-11, X-15, X-17, X-37, Z48, Z86, ZA2, ZA4, ZA7, , ZB6, ZC7; Dow ABS 213, 350, 500, PG912, PG940 Resin; Lucky ABS HF-350, HF-380, HI-100, HI-121, HI-151, HR-420, HR-450; Lustran ABS 248, 448, 648, 743, 750-10802, -HR850, -HR851, FR ABS911, FR ABS914HM, FR ABS921UV, Ultra ABS HX, MX; Magnum ABS 213, 341, 343, 545, 941, 4500UV, 9010, 9020, 9030, 9408, CLR95; Novodur P2T, P2T-AT, PH-AT, PHGV, PHGV-AT, PK, PK-AT, PKT, PL-AT, PLT-AT, PM, PM3C, PM5C, PM-AT, PMT, PMT-AT, PTE, PX; PDX-84357; RTP 601, 603, 605, 607; Stat-Kon AC-1003; Thermocomp AF-1004, AF-1006, AF-1008

#### **Compression Molding:**

Dow ABS 213, 350, 500, PG912, PG940 Resin

#### **Structural Foam Processing:**

Cypolac FBK, ZC7

#### **Thermoforming:**

Cypolac CGA; Lustran ABS 860

### **APPLICATIONS:**

Automotive applications: (ABS 236MA, 236MA, 323MA, 424ESM, 500FR-1; ABS-G1FG-2; AS-10GF, -20GF, -30GF, -40GF; Cypolac ETS-3540, HM, X-15, X-17, ZA2, ZA4, ZA7; Dow ABS 213, 350, 500; Lucky ABS HI-121, SH-610; Lustran ABS-HR850, -HR851; Novodur Series, PMT; RTP 601, 603, 605, 607; Thermocomp AF-1004, AF-1006, AF-1008); ATV (ABS 522ESM); bumpers (Cypolac LXB); consoles (ABS 236MA, TA); exterior parts (ABS 910K; Cypolac AR, EP-3510, EPB-3570; Lustran ABS 252, 452, 752); heating/air conditioner ducts (Cypolac AR; Lucky ABS HR-420, HR-450; Lustran ABS-HR850, -HR851); instrument panels (ABS 414MA; Lucky ABS HR-420, HR-450; Lustran ABS 252,

## *ABS resin (cont'd.)*

452, 456, 752, -HR850, -HR851); interior parts (ABS 236F; Cycolac AR, EP-3510, TA, X-11, Z48; Lustran ABS-HR850, -HR851); light housings (Lustran ABS-HR850, -HR851); motorcycle components (Lustran ABS 252, 452, 752); RV exteriors (Lustran ABS 252, 452, 752); RV interiors (ABS 420A); snowmobile components (Abson 171; Cycolac L; Lustran ABS 252, 452, 752)

Aviation industry: (ABS 500FR-1); avionics housings (PDX-84357)

Consumer products: (Lucky ABS HF-350, HF-380, HI-121, HI-151, HR-420, HR-450); carrying cases (ABS 224M); cosmetic cases (Cycolac EP-3510; Lucky ABS HI-151); furniture (ABS 500FR-1; Cycolac DFA-R, T; Lucky ABS HF-350, HF-380, HI-121; Lustran ABS 456; Novodur Series); hardware (Cycolac DFA-R); housewares (ABS 707K; Cycolac DFA-R; Lustran ABS 248); lawn and garden equipment (ABS 707H; Cycolac GSM; Lustran ABS 448, 648, 743; Lustran Ultra ABS HX, MX); luggage (ABS 424ESM, 522ESM; Dow ABS 213, 350, 500; Lucky ABS HI-121, SH-610; Lustran ABS 252, 452, 456, 752); musical instruments (Lucky ABS HF-350, HF-380, HI-121); photographic equipment (Cycolac X-37; Lustran ABS 248; Novodur Series; Thermocomp AF-1004, AF-1006, AF-1008); plumbing fixtures (Cycolac EPB-3570; Lustran ABS 456); recreational equipment (ABS 424ESM, 504ESG, 506ESG, 707K; Lustran ABS 252, 452, 752; Novodur Series); safety helmets (Abson 161; Cycolac L; Lucky ABS HI-100); shoes (Lucky ABS HI-100; Lustran ABS 448); smoke detector housings (ABS 500FR-1); sporting goods (ABS 224M, 808K; Cycolac GSM; Dow ABS 213, 350, 500; Lucky ABS HI-121; Lustran ABS 448, 648; Lustran Ultra ABS HX); toys (ABS 125M; Abson 135; Bapolan 8445; Cycolac CTB, DFA-R, T; Dow ABS 213, 350, 500; Lucky ABS HI-121; Lustran ABS 248, 448, 648; Lustran Ultra ABS HX, MX; Novodur Series); vacuum cleaner components (Cycolac GSM; Lustran ABS-HR850, -HR851)

Electrical/electronics industry: (Cycolac KJU, Z86; Novodur Series; PDX-84357); cassette housings (Cycolac CTB, L; Lustran Ultra ABS HX, MX); computers (Bapolan 8640; Cycolac KJB, KJU; Stat-Kon AC-1003); electrical appliances (Cycolac KJB, KJT); electrical components (Cycolac L; Stat-Kon AC-1003); electrical enclosures/packaging (Lustran ABS 865; Stat-Kon AC-1003); electronic instruments (Bapolan 8640); lighting equipment (Lucky ABS HI-121, HR-420, HR-450); power tools (Cycolac KJB, KJT, X-17, X-37; Lustran ABS 648, 743; Lustran Ultra ABS HX, MX); speaker cabinets (Lucky ABS HI-151); telecommunications (ABS 808K; Abson 135; Bapolan 8445, 8640; Cycolac FBK, GT, KGA, T, X-37, ZB2, ZB6, ZC7; Lucky ABS HF-350, HF-380, HI-151; Lustran ABS 448; Lustran Ultra ABS HX, MX); TV cabinets (Abson 010, 042, Z86; Lucky ABS HF-350, HF-380, HR-420, HR-450); TV components (Cycolac FBK, KJT)

Industrial applications: (Lucky ABS RS-600); appliances (AS-10GF, -20GF, -30GF, -40GF; Bapolan 8445, 8640; Cycolac DFA-R, EPB-3570; Cycolac FBK, L, X-17, X-37; Dow ABS 213, 350, 500; Lucky ABS HF-350, HF-380; Lucky ABS HI-121, HI-151; Lustran ABS 248, 448, 648, 743, -HR850, -HR851; Lustran Ultra ABS HX, MX; Novodur Series; Thermocomp AF-1004, AF-1006, AF-1008); appliance

## *ABS resin (cont'd.)*

housings (ABS 400P, 506ESG; Cycolac EP-3510, T; Lucky ABS HI-121); appliance parts (ABS 124ESGE, 236MA, 410ESG, 500FR-1, 707H, 808K; Abson 135; Cycolac EP-3510); business machines and office equipment (ABS 808K; Abson 010, 042; AS-10GF, -20GF, -30GF, -40GF; Bapolan 8445; Cycolac FBK, KJB, KJT, X-37; Lucky ABS HF-350, HF-380, HI-151; Lustran ABS 248, 448, 648, 865; Lustran Ultra ABS HX, MX; Novodur Series; PDX-84357; Thermocomp AF-1004, AF-1006, AF-1008); closures (ABS 125M); construction applications (AS-10GF, -20GF, -30GF, -40GF; Cycolac X-11); core laminates (ABS 550ES); fittings (Lucky ABS HI-100; Lustran ABS 750-10802); housings (ABS 506ESG, 707H, 707K; Abson 042; AS-10GF, -20GF, -30GF, -40GF; Bapolan 8635; Cycolac FBK, GSM, KJT, ZB2; Dow ABS 213, 350, 500; Lucky ABS HF-350, HF-380, HI-121, HI-151, HR-420, HR-450; Lustran ABS 648, 743, -HR850, -HR851; Lustran Ultra ABS HX, MX; PDX-84357); intricate moldings (ABS 125M; Cycolac EP-3510, TA); knobs (Lucky ABS MP-211); large parts (Cycolac CG, LS; Lucky ABS HF-350, HF-380); molded parts (ABS 124ESG, 125M; Lucky ABS HI-100); packaging/displays (Cycolac CTB; Lustran ABS 248); pipe (ABS 301K, 510EC, 606ED; Dow ABS 213, 350, 500, PG912, PG940; Lucky ABS HI-100, HI-121; Lustran ABS 750-10802, 780-10802, 782-10846; Magnum ABS FG960); profile and sheet (ABS 124ESGE, 410ESG, 504ESG, 506ESG, 522ESM, 550ES; Cycolac SF); refrigerator liners/parts (ABS 504ESG; Bapolan 8445; Cycolac CTB; Dow ABS 213, 350, 500; Lucky ABS HI-121, MP-211, RS-600; Lustran ABS 252, 452, 545, 752); sheet (Bapolan 8635; Lucky ABS HI-121, RS-600, SH-610; Lustran ABS 860); swimming pool valves (ABS 707H); textile applications (Novodur Series, HG V); thick sections (Cycolac L); thin sections (ABS 125M; Cycolac TA); tools (Cycolac FBK, GSM; Dow ABS 213, 350, 500; Lustran ABS 248, 448)

Marine equipment: (Cycolac EPB-3570); boats (Lucky ABS HI-121; Lustran ABS 252, 452, 752)

### **PROPERTIES:**

#### **Form:**

Solid (ABS 124ESG, 124ESGE, 125M, 224M, 236F, 236MA, 236MA, 301K, 323MA, 400P, 410ESG, 414MA, 420A, 424ESM, 500FR-1, 504ESG, 506ESG, 510EC, 522ESM, 550ES, 606ED, 707H, 707K, 808K, 910K; Dow ABS 213, 350, 500, PG912, PG940)

Pellets (Cycolac FBK)

#### **Color:**

Transparent (Cycolac CTB; Magnum ABS CLR95)

Natural (ABS 124ESG, 124ESGE, 125M, 224M, 236F, 236MA, 236MA, 323MA, 400P, 410ESG, 414MA, 420A, 424ESM, 500FR-1, 504ESG, 506ESG, 522ESM, 550ES, 707H, 707K, 808K; Cycolac FBK, KJB, X-37; Lustran ABS 248, 448, 456, 648, 743, 860, -HR850, -HR851; Lustran FR ABS911, FR ABS914HM, FR ABS921UV; Lustran Ultra ABS HX, MX; Magnum ABS 213, 341, 343, 545, 941, 4500UV, 9010, 9020, 9030, 9408, 9450P, FG960; Novodur Series; RTP 601, 603, 605, 607)

## ***ABS resin (cont' d.)***

White (Lustran ABS 545)

Light (Dow ABS 213, 350, 500)

Colors (ABS 236F, 236MA, 400P; Lustran ABS 456, 545, 860, -HR850, -HR851)

Opaque, colorable (Abson 010, 042, 110, 120, 130, 135, 140, 161, 171)

Opaque colors (Novodur Series)

Gray (ABS 910K; Cicolac EP-3510, EPB-3570; Lustran ABS PG-298, PG-299, PG-300)

Black (ABS 301K, 510EC, 606ED; Lustran ABS 780-10802, 782-10846; RTP 601, 603, 605, 607)

### **GENERAL PROPERTIES:**

#### **Melt Flow:**

0.9 g/10 min (Lustran ABS 865)

1.5–2.5 g/10 min (ABS-G1FG-2)

1.8 g/10 min (Lustran ABS 1152)

2.0 g/10 min (Bapolan 8635; Magnum ABS 941)

2.6 g/10 min (Magnum ABS FG960)

3.8 g/10 min (Magnum ABS 9408)

4.0 g/10 min (Bapolan 8445, 8640)

5.0 g/10 min (Magnum ABS 341, 9030)

5.5 g/10 min (Magnum ABS 213, 545, 9020)

6.0 g/10 min (Magnum ABS CLR95)

6.5 g/10 min (Magnum ABS 4500UV)

8.0 g/10 min (Magnum ABS 343, 9010, 9450P)

11 cc/s (Lucky ABS HI-100)

15 cc/s (Lucky ABS HI-121, HR-420, MP-211)

19 cc/s (Lucky ABS HI-151)

33 cc/s (Lucky ABS HR-450)

43 cc/s (Lucky ABS HF-380)

54 cc/s (Lucky ABS HF-350)

#### **Sp.gr.:** 0.97 (Cicolac SF)

1.02 (Cicolac CG, L, LS, LXB)

1.03 (ABS 506ESG, 808K; Cicolac CGA, HM; Lucky ABS HI-100; Lustran ABS 1152)

1.04 (ABS 504ESG, 522ESM, 606ED, 707H, 707K; Bapolan 8445; Cicolac DFA-R, GSE, GSM, T, TA, X-11, ZA2, ZA4; Lucky ABS HF-350, HI-121, MP-211; Lustran ABS 456, 648, 743, 752, 780-10802; Lustran Ultra ABS HX; Magnum ABS 545, 9010, 9020, 9030, 9450P)

1.05 (ABS 124ESG, 124ESGE, 125M, 224M, 236F, 236MA, 236R, 301K, 323MA, 400P, 410ESG, 414MA, 420A, 424ESM, 510EC, 550ES; Cicolac AR, DH, ETS-3540, X-11, X-15, X-17, ZA7; Dow ABS 213, 500; Lucky ABS HF-380, HI-151, HR-420, HR-450; Lustran ABS 448, 750-10802, 782-10846, -HR850; Lustran Ultra ABS MX; Magnum ABS 213, 341, 343, 941, 9408, FG960)

1.06 (ABS 910K; Cicolac EP-3510, EPB-3570, X-37, Z-36, Z48; Dow ABS 350;



## *ABS resin (cont'd.)*

Lustran ABS 248, 452, -HR851, PG-298, PG-299, PG-300)

1.07 (Cycolac CTB; Lustran ABS 252)

1.09 (Magnum ABS CLR95)

1.10 (AS-10GF; Lustran ABS 545)

1.11 (RTP 601; Stat-Kon AC-1003)

1.18 (RTP 603)

1.20 (AS-20GF; Cycolac KJM, KJT, Z86; Lustran ABS 860, 865; Lustran FR  
ABS914HM, FR ABS921UV; Thermocomp AF-1004)

1.21 (Lustran FR ABS911; Magnum ABS 4500UV)

1.22 (Cycolac KJB, KJU, KJW)

1.28 (RTP 605; Thermocomp AF-1006)

1.29 (AS-30GF)

1.30 (PDX-84357)

1.33 (ABS 500FR-1)

1.38 (AS-40GF; RTP 607; Thermocomp AF-1008)

### **Sp. Vol.:**

20.1 in.<sup>3</sup>/lb (Thermocomp AF-1008)

21.6 in.<sup>3</sup>/lb (Thermocomp AF-1006)

23.1 in.<sup>3</sup>/lb (Thermocomp AF-1004)

### **Density:**

1.03 g/cc (Novodur PK, PK-AT)

1.04 g/cc (Novodur PM, PM3C, PM-AT, PME)

1.05 g/cc (Novodur PH-AT, PHE, PKT, PMT, PMT-AT, PX, X)

1.06 g/cc (Novodur P2T, P2T-AT, PM5C)

1.09 g/cc (Novodur HGV)

1.15 g/cc (Novodur PHGV)

1.16 g/cc (Novodur PHGV-AT)

1.17 g/cc (ABS-G1FG-2)

1.02 mg/m<sup>3</sup> (Abson 161, 171)

1.04 mg/m<sup>3</sup> (Abson 135)

1.06 mg/m<sup>3</sup> (Abson 110)

1.17 mg/m<sup>3</sup> (Abson 010)

1.22 mg/m<sup>3</sup> (Abson 042)

43 lb/ft<sup>3</sup> (bulk) (Magnum ABS 213, 341, 343, 545, 941, 4500UV, 9010, 9020, 9030,  
9408, 9450P, CLR95, FG960)

### **Visc.:**

3.9 kPa•s (450 F, apparent) (Lustran ABS 545)

4.14 kPa•s (232 C, apparent) (Lustran ABS 456)

4.48 kPa•s (232 C, apparent) (Lustran ABS 252, 452, 752)

7.24 kPa•s (190 C, apparent) (Lustran ABS 860)

75 poise (450 F, melt) (Magnum ABS 213)

90 poise (450 F, melt) (Magnum ABS 4500UV)

120 poise (450 F, melt) (Magnum ABS 343)

## ***ABS resin (cont' d.)***

130 poise (450 F, melt) (Magnum ABS CLR95)  
150 poise (450 F, melt) (Magnum ABS 545)  
200 poise (450 F, melt) (Magnum ABS 9010, 9450P)  
240 poise (450 F, melt) (Magnum ABS 9020)  
260 poise (450 F, melt) (Magnum ABS 341)  
280 poise (450 F, melt) (Magnum ABS 9030, 9408)  
438 poise (450 F, melt) (Magnum ABS 941)

### **M.P.:**

460–500 F (AS-10GF)

### **Stability:**

Resistant to aq. acids, alkalis, and salts; conc. oxidizing acids produce disintegration; aromatic or chlorinated hydrocarbons and high KB solvents cause marked swelling (Cyclocac KJM, KJU, Z86)

Excellent thermal stability; excellent chemical resistance to organic acids, aliphatic amines, bases, polyglycols, pharmaceuticals; good resistance to weak and strong inorganic acids, alcohols (Dow ABS 213, 350, 500, PG912, PG940)

Highly resistant to chemicals; unaffected by alkalis, dilute organic and inorganic acids, aliphatic hydrocarbons, and most oils and fats; swelling or superficial dissolution may be caused by aromatics, ketones, ethers, esters, and chlorinated hydrocarbons; sensitive to oxygen and uv radiation, resulting in yellowing and other aging effects (Novodur Series)

Excellent resistance to bases; good resistance to acids; poor resistance to solvents (Thermocomp AF-1008)

### **Ref. Index:**

1.536 (Cyclocac CTB)

### **60° Gloss:**

10–50% (Magnum ABS 9408)  
10–70% (Magnum ABS 213, FG960)  
25–80% (Magnum ABS 343, 545, 941)  
40–50% (Lustran ABS 865)  
60% (Magnum ABS 4500UV)  
60–90% (Magnum ABS 341)  
70–80% (Lustran ABS 1152)  
95% (Magnum ABS 9010, 9020, 9030)

## **MECHANICAL PROPERTIES:**

### **Tens. Str.:**

13–27 MPa (Cyclocac FBK)  
13.1 MPa (yield) (Lustran ABS 456)  
16 MPa (Cyclocac SF)  
28 MPa (break) (Abson 010)  
29 MPa (Cyclocac CGA)  
30 MPa (Cyclocac CG); (break) (Abson 161)  
31 MPa (break) (Abson 171); (yield) (Lustran ABS 1152)

## **TRADENAME PRODUCT MANUFACTURERS**

**Acme Chemical & Insulation Co./  
Div. of Allied Prod. Corp.**  
PO Box 1404  
New Haven, CT 06505

**Allied-Signal**  
PO Box 2332R  
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Morristown, NJ 07960

Allied Corporation International NV-SA  
Haasrode Research Park  
B-3030 Heverlee, Belgium

Allied Corporation International NV-SA  
International House  
Bickenhill Lane  
Birmingham B37 7HQ  
England

Allied Chemical International Corporation  
P.O. Box 99067, Tsimshatsui Post Office  
Hong Kong

**American Cyanamid Co.**  
Industrial Chem. Div.  
Berdan Ave.  
Wayne, NJ 07470

American Cyanamid Co./  
Polymer & Chem. Dept.  
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Wayne, NJ 07470

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Postbus 1523, 3000 BM  
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Cyanamid India Ltd.  
Nyloc House, 254-D2 Dr. Annie Besant Rd.  
Bombay 400 025 India

Cyanamid Quimica do Brasil Ltda.  
Av. Imperatriz Leopoldina, 86  
Sao Paulo, Brazil

Cyanamid Taiwan Corp.  
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137, Nanking E. Rd., Sec. 2  
Taipei, Taiwan, R.O.C.

**Amoco Chemicals Corp.**  
200 East Randolph Dr., PO Box 8640A  
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Amoco Chemical Europe S.A.  
15, Rue Rothschild  
CH-1211 Geneva 21,  
Switzerland

Amoco Performance Products,  
Japan Ltd.  
10th Floor, Tonichi Building  
2-31 Roppongi 6-Chome  
Minato Ku, Tokyo 106, Japan

**Arizona Chemical Co.**  
16-00 Route 208  
Fairlawn, NJ 07410

**Ashland Chemical Co./  
Div. Ashland Oil, Inc.**  
Box 2219  
Columbus, OH 43216

**Astro Chemical Co., Inc.**  
1205 Godfrey Lane  
Schenectady, NY 12309

**Bacon Industries Inc.**  
192 Pleasant St.  
Watertown, MA 02172

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**Badische Corp.**

PO Drawer D  
Williamsburg, VA 23187

**Bamberger Polymers, Inc.**

3003 New Hyde Park Rd.  
New Hyde Park, NY 11042

**BASF Corp.**

100 Cherry Hill Rd.  
Parsippany, NJ 07054

BASF Canada Ltd.  
PO Box 430  
Montreal, Quebec H4L 4V8, Canada

BASF (UK) Ltd.  
PO Box 4, Earl Rd., Cheadle Hulme  
Cheadle, Cheshire SK8 6QG, UK

BASF Belgium S.A.  
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Belgium

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D-6700 Ludwigshafen, West Germany

BASF Espanola S.A.  
Apartado 762  
Barcelona 8, Spain

BASF S.A., Compagnie Francaise  
MC-NT, 140, Rue Jules Guesde  
92303 Levallois-Perret, France

BASF India, Ltd.  
Maybaker House, S.K. Ahire Marg.  
PO Box 19108  
Bombay 400 025 India

BASF Japan Ltd.  
C.P.O. Box 1757  
Toyko 100-91  
Japan

**Bayer AG**

Sitz der Gesellschaft, Leverkusen  
Eintragung, Amtsgericht  
Leverkusen HRB 1122, Germany

Bayer UK Ltd.

Bayer House, Strawberry Hill  
Newbury, Berkshire RG13 1JA, UK

**Borg-Warner Chemicals Inc.**

International Center  
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Leamington Spa, Warks CV32 7JW, UK

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1005 AC Amsterdam, Havens West  
The Netherlands

Ube Cycon, Limited  
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7-1 Kasumigaseki 3-chome  
Chiyoda-ku, Tokyo 100  
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**R.H. Carlson Co.**

41 Chestnut St.  
Greenwich, CT 06830

**Ciech Plastofarb Div.**

ul. Jasna 12  
00950 Warsaw, Poland

**Compounding Technology, Inc.**

3140 Pullman St.  
Costa Mesa, CA 92626

**Continental Polymers Inc.**

2225 East Del Amo Blvd.  
Compton, CA 90220

**Cosden Oil & Chemical Co.**

PO Box 2159, 3350 N. Central Expressway  
Dallas, TX 75221

**Crosby Chemical Inc.**

600 Whitney Bldg.  
New Orleans, LA 70130

**Cyro Industries**

697 Route 46  
Clifton, NJ 07015

## TRADENAME PRODUCT MANUFACTURERS

**Delta Plastics Co.**  
Santa Fe Springs, CA

**Dow Chemical Co.**  
1703 S. Saginaw Rd.  
Midland, MI 48640

Dow Chemical Co. Ltd.  
Stana Place, Fairfield Ave.  
Staines, Middlesex TW18 4SX, UK

Dow Chemical Europe S.A.  
Bachtobelstrasse 3, CH-8810  
Horgen, Switzerland

Dow Chemical Pacific Limited  
P.O. Box 711  
Hong Kong

**E.I. DuPont de Nemours & Co.**  
Nemours Bldg.  
Wilmington, DE 19898

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15990 N. Barkers Landing Rd., POB 19029  
Houston, TX 77224

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PO Box 26, Toronto Dominion Center  
Toronto, Ont. M5K 1B6 Canada

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DuPont (UK) Ltd./Polymer Prods. Dept.  
Maylands Ave., Hemel Hempstead  
Herts HP2 7DP, UK

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0137, rue de l'Universite  
F-75334 Paris Cedex 07  
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DuPont de Nemours International S.A.  
Case Postale CH-1211  
Geneva 24, Switzerland

DuPont Japan Ltd.  
P.O. Box 37, Akasaka  
Tokyo, 107-91 Japan

**Eastman Chemical Products, Inc./  
Subsid. of Eastman Kodak Co.**  
PO Box 431  
Kingsport, TN 37662

Eastman Chemical International A.G.  
Hemel Hempstead  
P.O. Box 66  
Kodak House, Station Road  
Herts, HP1 1JU England

Eastman Japan Ltd.  
Nishi-Shinbashi Mitsui Bldg.  
1-24-14 Nishi-Shinbashi  
Minato-Ku, Tokyo 105  
Japan

**Emerson & Cuming—See W.R.  
Grace & Co.**

**Fiberite Corp.**  
501-559 W. Third St.  
Winona, MN 55987

**Freeman Chemical Corp./Subsid.  
of H.H. Robertson Co.**  
PO Box 247  
Port Washington, WI 53074

**GAF Corp./Chemical Products**  
1361 Alps Rd.  
Wayne, NJ 07470

GAF Europe  
40 Alan Turing Rd., Surrey Research Park  
Guildford, Surrey, UK

**General Electric Co.**  
General Electric Co./Plastics Div.  
One Plastics Ave.  
Pittsfield, MA 01201

General Electric Co./Silicone Prod. Div.  
Mechanicsville Rd.  
Waterford, NY 12188

General Electric Plastics B.V.  
Plasticslaan 1, P.O. Box 117  
4600 AC Bergen op Zoom  
The Netherlands

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Risley, Warrington  
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General Electric (USA) Plastics Japan Ltd.  
No. 35 Kowa Building 5F  
14-14 Akasaka 1-chome  
Minato-ku, Tokyo 107  
Japan

**Georgia-Pacific Corp.**  
300 W. Laurel St.  
Bellingham, WA 98225

**M.C. Gill Corp.**  
4056 Easy St.  
El Monte, CA 91731

**BFGoodrich Co.**  
6100 Oak Tree Blvd.  
Cleveland, OH 44131

BFGoodrich Chemical (U.K.) Ltd.  
The Lawn  
100 Lampton Road  
Hounslow, Middlesex TW3 4EB  
England

BFGoodrich Chemical (Deutschland)  
GmbH  
Goerlitzer Str. 1  
4040 Neuss 1  
Federal Republic of Germany

**W.R. Grace & Co,**  
W.R. Grace & Co./Organic Chem. Div.  
55 Hayden Ave.  
Lexington, MA 02173

Emerson & Cuming/W.R. Grace & Co.  
869 Washington St.  
Canton, MA 02021

W.R. Grace Ltd.  
Northdale House, North Circular Rd.  
London NW10 7UH, UK

**C.P. Hall Co.**  
7300 South Central Ave.  
Chicago, IL 60638

**Hammond Plastics Div./  
Carl Gordon Industries Inc.**  
1001 Southbridge St.  
Worcester, MA 01610

**Hardman Inc.**  
600 Cortland St.  
Belleville, NJ 07109

**Harwick Chemical Corp./Polymer  
Application**  
60 South Seiberling St.  
Akron, OH 44305

**Hercules Inc.**  
Hercules Plaza  
Wilmington, DE 19894

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PO Box 98  
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Div.**  
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**Hoechst Celanese Corp.**  
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Somerville, NJ 08876

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### **Huls America Inc.**

10 Link Dr.  
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Hüls AG, Chemische Werke  
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Huls (UK) Ltd.  
Cedars House, Farnborough Common  
Orpington, Kent BR6 7TE, UK

### **Hysol Div./The Dexter Corp.**

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Industry, CA 91749

### **Impco Inc.**

335 Valley St.  
Providence, RI 02908

### **International Thermoset Inc.**

11113 North Dixie Drive  
Vandalia, OH 45377

### **S.C. Johnson & Son, Inc.**

3225 North Verdugo Rd.  
Glendale, CA 91208

### **Kama Corp.**

668 Dietrich Ave., PO Box 920  
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### **Koppers Co., Inc.**

1350 Koppers Bldg.  
Pittsburgh, PA 15219

### **LNP Corp.**

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LNP Plastics U.K.  
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### **M.A. Industries Inc., Polymer Div.**

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### **Mitsubishi International Corp./ Chemicals Dept.**

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### **Mobay Chemical Corp./Organic & Rubber Chem. Div., Plastics Div.**

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### **Mobil Oil Corp./Special Products Dept.**

3225 Gallows Rd.  
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Mobil Polymers U.S. Inc.  
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### **Monsanto Co.**

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### **Morton International**

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Morton International/Morton Chem. Div.  
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Princeton, NJ 08540, NJ 08540

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150 Andover St.  
Danvers, MA 01923

Williams Div./Morton Thiokol Ltd.  
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Hounslow, Middlesex TW3 3RX, UK

**MRC Enterprises Inc.**

1716 W. Webster Ave.  
Chicago, IL 60614

**National Starch and Chemical Corp.**

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Bridgewater, NJ 08807

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Northants NN11 7JL, UK

**Neville Chemical Co.**

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Pittsburgh, PA 15225

**Occidental Chemical Corp.**

360 Rainbow Blvd, S., POB 728  
Niagara Falls, NY 14302

Occidental Chemical Corp./  
Durez Resins & Molding Materials  
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North Tonawanda, NY 14120

**Phillips Chemical Co./Subsid. of  
Phillips Petroleum Co.**

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**Plastics Engineering Co.**

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Sheboygan, WI 53081

**Polymer Applications**

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**Polymer Corp., The**

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**Polyvinyl Chemical Industries**

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**Presto Mfg. Co., Inc.**

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**Quantum Chemical Corp.**

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Euclid, OH 44132

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Quantum Chemical Ltd.  
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Toronto, Ontario M8Z 1K2

**Reichhold Chemicals Inc.**

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**Rogers Corp.**

One Technology Dr.  
Rogers, CT 06263

**Rohm & Haas Co.**

Independence Mall West  
Philadelphia, PA 19105

Rohm & Haas (Australia) Pty. Ltd.  
969 Burke Rd., PO Box 115 Camberwell  
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### **Scott Bader Co. Ltd.**

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### **Solvay & Cie**

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Soltex Polymer Corp./  
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Houston, TX 77098

### **Spaulding Fibre Co., Inc.**

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Buffalo, NY 14225

### **St. Lawrence Resin Products, Ltd.**

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Hamilton, Ontario, Canada L8L 5W3

### **Standard Polymers Corp.**

45 Legion Dr.  
Cresskill, NJ 07626

### **The Terrell Corp.**

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Wilmington, MA 01887

### **Thibaut & Walker**

PO Box 296  
Newark, NJ 07101

### **Tra-Con Inc.**

55 North St.  
Midford, MA 02155

### **Union Carbide Corp.**

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Union Carbide Japan KK  
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5-Chome Minato-Ku  
Tokyo 105, Japan

**USI Chemicals Co.**—*See Quantum  
Chem. Corp./USI Div.*

### **Washington Penn Plastic Co., Inc.**

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### **Westlake Plastics Co.**

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### **Wilmington Chemical Corp.**

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### **Xcel Corp.**

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