

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J1344

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Submitted for recognition as an American National Standard

MARKING OF PLASTIC PARTS

1. Scope—This SAE Recommended Practice provides a system for marking plastic parts to designate the type of material from which the part was fabricated.

1.1 Purpose—The purpose of this document is to provide information to facilitate the:

- a. Selection of materials and procedures for repairing and repainting plastic parts
- b. Collection and handling of parts for subsequent recycling

2. References

2.1 Applicable Publications—The following publications form a part of this specification to the extent specified herein.

2.1.1 ISO PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ISO 1043-1—Plastics-Symbols—Part 1: Basic polymers and their special characteristics

ISO 1043-2—Plastics-Symbols—Part 2: Fillers and reinforcing materials

ISO 1629—Rubber and latices—Nomenclature

ISO 11469—Plastics—Generic identification and marking of plastic products

2.1.2 VDA STANDARDS—Available from DIN, Deutsches Institut für Normung, Burggrafeng Strasse 6, Postfach 1107, D-1000 Berlin 30 Germany.

VDA 260—German Motor Vehicles—Marking of Parts of Polymeric Materials

2.2 Related Publications—The following publications are provided for information purposes only and are not a required part of this document.

2.2.1 ASTM PUBLICATIONS—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTMD1600—Standard Terminology Relating to Abbreviations, Acronyms, and Codes for Terms Relating to Plastics

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3. Description

- 3.1** The system is based on standard symbols for terms relating to plastics published by the International Organization for Standardization (ISO 1043). Most commonly used symbols, including some not covered by ISO, are shown in Table 1. In addition, symbols for commercial plastic blends are shown in Table 2, and symbols for commonly used automotive fillers/reinforcements derived from ISO 1043-2 are shown in Table 3.
- 3.2** If additional symbols are required to cover new materials, the form in Appendix A shall be completed and submitted to SAE. New symbols will be included in the next revision to this document.

4. Use of Marking Symbols

- 4.1** In view of the wide variety of parts used in substantially different assembly situations, this document does not prescribe the location, and/or method of marking; however, the following guidelines should be followed:
- 4.1.1** Field service people should be informed regarding the material from which the part is made so suitable repair and paint procedures may be used.
- 4.1.2** Wherever practicable, the marking should be located where it may be observed while the part is in use. Consideration should be given to the use of multiple markings on large or complex shaped parts.
- 4.1.3** From the standpoint of field service people, marking on the outside surface of the part (in an unobtrusive location from the viewpoint of the owner) is preferred.
- 4.1.4** Markings applied with inks, dyes, or paints should not bleed, run, smudge, or stain other materials which may come in contact with the marking.
- 4.1.5** Marking should be designed to remain legible during the entire life of the part.
- 4.1.6** Markings which are molded into the part are preferred since they are permanent and do not require separate manufacturing operations as do those applied to the surface of the part after molding. Molded in markings should not create a stress concentration site which could result in premature cracking of the part.
- 4.1.7** The recommended practice for the standard marking symbol is as shown in Figure 1. Dimensions are suggested guidelines. Markings should be proportional to part size.

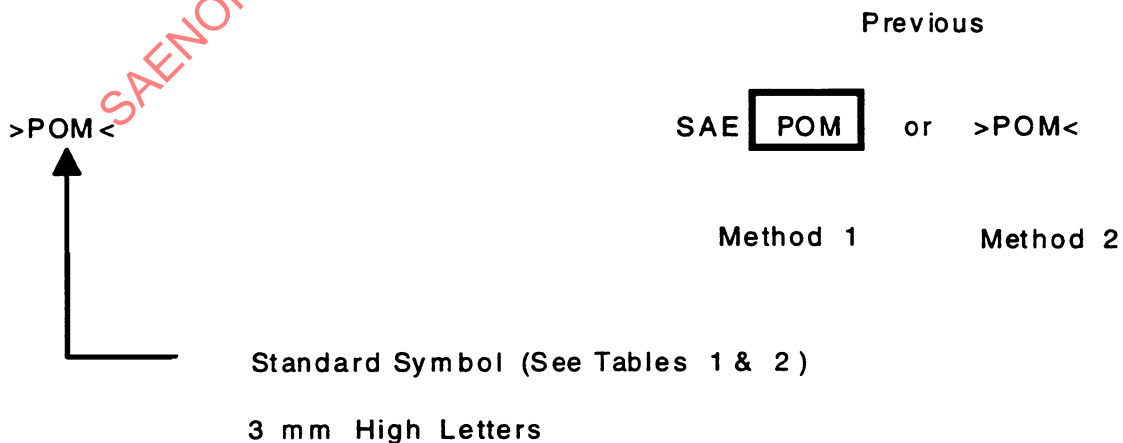


FIGURE 1—STANDARD MARKING SYMBOL

4.1.8 EXAMPLES—(See Figure 2.)

>PP<	Polypropylene
>PA66<	Polyamide 66
>ABS + PC<	Acrylonitrile/butadiene/styrene + Polycarbonate Blend

FIGURE 2—EXAMPLES OF STANDARD MARKING SYMBOL

- 4.2** For parts using plastic materials containing fillers/reinforcements in the amount of 10% and greater, the same designation shall be used for the “family name” as defined in Table 1 and, in addition, alpha codes from ISO1043-2, followed by a numeric value representing the nominal percentage of filler/reinforcer. The polymer family codes shall be separated from the filler/reinforcement codes and value by use of a hyphen.

4.2.1 EXAMPLES—(See Figure 3.)

>PBT-GF30<	Polybutylene Terephthalate, 30% Glass Fiber Reinforced
>PBT-(GF + M)40<	
or	
>PBT-(GF15 + M25)<	Polybutylene Terephthalate, 15% Glass Fiber + 25% Mineral Reinforced

FIGURE 3—EXAMPLES OF STANDARD MARKING SYMBOLS FOR REINFORCED PLASTICS

- 4.3** Parts fabricated from two or more materials, some of which are not readily visible, may be marked so the primary visible material is identified first by the system specified in 3.1 followed by identification of the other material(s) where the individual identification(s) is separated by a comma. The main component by mass is identified by underlining.

4.3.1 EXAMPLES—For a product made of three components, the visible one is a thin coating of poly (vinyl chloride) over a polyurethane containing an insert of acrylonitrile/butadiene/styrene that is the major component by mass, see Figure 4.

>PVC,PUR,ABS<

FIGURE 4—EXAMPLES OF STANDARD MARKING SYMBOLS FOR COMPOSITE PARTS

TABLE 1—SYMBOLS FOR MARKING PLASTIC PARTS

Plastic "Family" Name ⁽¹⁾	Common Name	Standard Symbol	(Previous) ⁽²⁾⁽³⁾
Acrylonitrile/butadiene		AB	
Acrylonitrile/butadiene/acrylate		AB/A	
Acrylonitrile/butadiene/styrene		ABS	
Acrylonitrile/ethylene/styrene		AES	
Acrylonitrile/methyl/methacrylate		A/MMA	
Acrylonitrile/styrene/acrylate		ASA	
Carboxymethyl cellulose		CMC	
Casein		CS	
Cellulose acetate		CA	
Cellulose acetate butyrate		CAB	
Cellulose acetate propionate		CAP	
Cellulose formaldehyde		CF	
Cellulose nitrate		CN	
Cellulose priopionate		CP	
Cellulose triacetate		CTA	
Chlorinated polyethylene		CPE	
Chlorinated poly(vinyl chloride)		CPVC	
Epoxide; Epoxy		EP	
Ethyl cellulose		EC	
Ethylene/ethyl/acrylate		E/EA	
Ethylene/methacrylic acid		E/MA	
Ethylene/propylene/diene		EPDM	
Ethylene/tetrafluorethylene		E/TFE	
Ethylene/vinyl acetate		E/VAC	(EVA)(EVAC)
Ethylene vinyl alcohol		EVAL	(EVOH)
Furan formaldehyde		FF	
Melamine formaldehyde		MF	
Perfluoro(ethylene/propylene): Tetrafluorethylene/hexafluoropropylene		FEP	
Phenol formaldehyde		PF	
Phenol furfural		PFF	
Polyamide	Nylon	PA	
6 Polyamide		PA6	
66 Polyamide		PA66	
66/6 Polyamide		PA66/6	
46 Polyamide		PA46	
69 Polyamide		PA69	
11 Polyamide		PA11	
12 Polyamide		PA12	
610 Polyamide		PA610	
612 Polyamide		PA612	
Polyamide copolymers based on terephthalic acid, hexamethylenediamine, and 2-methylpentamethylenediamine		PA6T/MPMDT	
Polyamide/-imide		PAI	
Polyacrylonitrile		PAN	
Polyarylamid (polyaramide)		PARA	
Polyarylether		PAE	
Polyaryletherketone		PAEK	
Polyarylsulfone		PAS	(PASU)

TABLE 1—SYMBOLS FOR MARKING PLASTIC PARTS (CONTINUED)

Plastic "Family" Name ⁽¹⁾	Common Name	Standard Symbol	(Previous) ⁽²⁾⁽³⁾
Polybutene-1		PB	
Polycarbonate plastics		PC	
Polychlorotrifluoroethylene		PCTFE	
Poly(diallyl phthalate)		PDAP	(DAP)
Polydicyclopentadiene		PDCPD	
Polyarylate (polyarylterephthalate)		PAT	
Liquid Crystal Polymer: Copolyester (polyarylterephthalate)		LCP	(ARP)
Poly(butylene terephthalate)		PBT	
Polycyclohexylene terephthalate (poly[1,4 cyclohexylene dimethylene terphthalate])		PCT	
Polyether block amide		PEBA	
Poly(ethylene terephthalate)		PET	
Polyester, thermoset (unsaturated)	SMC, BMC, TMC	UP	
Poly(ether imide)		PEI	
Polyetherketone		PEK	
Poly(ether sulfone)		PES	(PESU)
Polyethylene		PE	
Linear Low Density		PE-LLD	(LLDPE)
Low Density		PE-LD	(LDPE)
Linear Medium Density		PE-LMD	(LMDPE)
Medium Density		PD-MD	(MDPE)
High Density		PE-HD	(HDPE)
Ultra-high molecular weight		PE-UHMW	
Poly(ethylene oxide)		PEOX	(PEO)
Perfluoro alkyl alkane		PFA	
Polyketone		PK	
Polyimide		PI	
Polyimidesulfone		PIS	(PISU)
Polyisobutylene		PIB	
Poly(methyl methacrylate)	Acrylic	PMMA	
Poly(methyl methacrylate imide)		PMMI	
Poly(4-methylpentene-1)		PMP	
Poly(p-oxybenzoate)		POB	
Polyoxymethylene; polyformaldehyde	Acetal	POM	
Polyphenylene ether		PPE	(PPO)
Polypropylene		PP	
Polystyrene		PS	
Polysulfone		PSU	
Poly(phthalamide)		PPA	
Poly(propylene oxide)		PPOX	
Poly(phenylene sulfide)		PPS	
Poly(phenylene sulfone)		PPSU	
Polytetrafluoroethylene		PTFE	
Polyurethane, thermoset (unsaturated)		PUR	
Poly(vinyl acetate)		PVAC	
Poly(vinyl alcohol)		PVAL	
Poly(vinyl butyral)		PVB	
Poly(vinyl butyrate)		PVB	
Polyvinylcarbazole		PVK	
Poly(vinyl chloride)		PVC	

TABLE 1—SYMBOLS FOR MARKING PLASTIC PARTS (CONTINUED)

Plastic "Family" Name ⁽¹⁾	Common Name	Standard Symbol	(Previous) ⁽²⁾⁽³⁾
Poly(vinyl chloride acetate)		PVCA	
Poly(vinyl fluoride)		PVF	
Poly(vinyl formal)		PVFM	
Poly(vinylidene chloride)		PVDC	
Poly(vinylidene fluoride)		PVDF	
Polyvinylpyrrolidone		PVP	
Silicone		SI	
Styrene/acrylonitrile		SAN	
Styrene/butadiene		S/B	
Styrene/maleic anhydride plastics		SMA	(S/MA)
Styrene/α-methylstyrene		S/MS	
Thermoplastic Elastomers:			
Chlorinated ethylene alloy		TECEA	
Polyether block amide		PEBA	
Polyolefinic		TEO	(TPO)(E/P)
Ether ester block copolymer		TEEE	(EEBC)
Polyurethane		TPU (PUR-T)	(TPUR)(RTPU)
Urea-formaldehyde		UF	
Vinyl chloride/ethylene		VC/E	
Vinyl chloride/ethylene/methyl acrylate		VC/E/MA	
Vinyl chloride/methyl acrylate		VC/MA	
Vinyl chloride/vinyl acetate		VC/VAC	
Vinyl chloride/vinylidene chloride		VC/VDC	

1. Common names and trademarks for each plastic "family" name are shown in Appendix C.1, and are intended as a guide to aid the user in selecting the correct standard symbol for the material under consideration.
2. Previous—SAE J1344 or other commonly used marking symbols
3. Symbols listed as ("PREVIOUS SYMBOLS") are former designations and should not be used on new parts. Intent of this is that changes are to be implemented on new or redesigned parts.

TABLE 2—SYMBOLS FOR COMMERCIAL BLENDS

Commercial Blends ⁽¹⁾	Standard Symbol	(Previous)
Acrylonitrile/butadiene/styrene + polyamide	ABS+PA	
Acrylonitrile/butadiene/styrene + polycarbonate	ABS+PC	
Acrylonitrile/butadiene/styrene + polyphenylene sulfone	ABS+PPSU	
Acrylonitrile/butadiene/styrene + polytetrafluoroethylene	ABS+PTFE	
Acrylonitrile/butadiene/styrene + polyvinyl chloride	ABS+PVC	
Acrylonitrile/butadiene/styrene + styrene maleic anhydride	ABS+SMA	(ABS+S/MA)
Acrylonitrile/butadiene/styrene + thermoplastic polyurethane	ABS+TPU	(ABS+TPUR)
Acrylonitrile/styrene/acrylate + polycarbonate	ASA+PC	
Acrylonitrile/styrene/acrylate + poly(methyl methacrylate)	ASA+PMMA	
Acrylonitrile/styrene + polyvinyl chloride	ASA+PVC	
Poly(methylmethacrylate, co-styrene, co-acrylonitrile) + poly(butadiene, co-methylmethacrylate, co-styrene)	MMA/S/AN + B/MMA/S	
Poly(methylmethacrylate, co-styrene, co-ethylacrylate + poly(butadiene, co-methylmethacrylate, co-styrene)	(MMA/S/EA+B/MMA/S)	
Polyamide + ethylene methacrylic acid (ionomer)	PA+E/MA	
Polyamide (amorphous) blend	PA+	
Polyamide + polyethylene	PA+PE	
Polyamide + styrene/acrylonitrile	PA+SAN	
Polycarbonate + poly (butylene terephthalate)	PC+PBT	
Polycarbonate + poly (ethylene terephthalate)	PC+PET	
Polycarbonate + polycyclohexylene terephthalate	PC+PCT	
Polycarbonate + styrene maleic anhydride	PC+SMA	(PC+S/MA)
Polycarbonate + thermoplastic polyurethane	PC+TPU	(PC+TPUR)(PC+PUR-T)
Poly(butylene terephthalate) + acrylonitrile/styrene/acrylate	PBT+ASA	
Poly(butylene terephthalate) + poly(ethylene terephthalate)	PBT+PET	
Poly(butylene terephthalate) + poly(phenylene ether)	PBT+PPE	
Ether ester block copolymer + polybutylene terephthalate	TEE+PBT	
Poly(ethylene terephthalate) + polymethyl methacrylate	PET+PMMA	
Poly(ethylene terephthalate) + polyphenylene sulfone	PET+PPSU	
Polyoxymethylene + polytetrafluoroethylene	POM+PTFE	
Poly(phenylene ether) + polyamide	PPE+PA	(PA+PPE)
Poly(phenylene ether) + high impact polystyrene	PPE+PS-HI	
Poly(phenylene sulfide) + polytetrafluoroethylene	PPS+PTFE	
Polypropylene + ethylene/propylene/diene	PP+EPDM	
Polysulfone + acrylonitrile/butadiene/styrene	PSU + ABS	
Polysulfone + polycarbonate	PSU + PC	
Polysulfone + poly(ethylene terephthalate)	PSU+ PET	
Poly(vinyl chloride) + chlorinated polyethylene	PVC + CPE	
Polyvinyl chloride + nitrile butadiene rubber	PVC + NBR	
Polyvinyl chloride + poly(methyl methacrylate)	PVC + PMMA	
Polyvinyl chloride + polyurethane	PVC + PUR	(PVC + PU)
Styrene/maleic anhydride + high impact polystyrene	SMA + PS-HI	(S/MA + PS)

1. Commercial mixtures/blends (alloys) of plastic resins.

TABLE 3—SYMBOLS FOR FILLERS AND REINFORCING MATERIALS

Fillers and Reinforcing Materials	Standard Symbol	Previous Symbol
Barium Sulfate®	U	BS
Glass spheres	GB	
Glass fiber	GF	
Glass fiber/mineral ⁽¹⁾	(GF+M) ⁽²⁾	
Glass fiber/mica ⁽³⁾	(GF+P) ⁽³⁾	
Glass mat	GM	
Carbon, graphite	C	
Carbon fiber	CF	
Aramid fibers	RF	
Mineral ⁽¹⁾	M	
Clay ⁽²⁾	E	
Calcium carbonate ⁽²⁾ powder	KD	
Mica ⁽²⁾	P	
Talc powder	TD	
Wood powder	WD	

1. The "mineral designation indicated here is generic, i.e., the type of mineral used as a filler is unknown.
2. Mixtures of fillers may be shown in parentheses by combining the relevant symbols with the sign "+".
3. When specific minerals are used as fillers, such as clay, calcium carbonate, mica, talc, etc., the precise symbol should be used. The form of the "mineral" should also be identified when available, e.g., beads (B); powder (D); fiber (F); whiskers (H); flake (S), yarn (Y).

5. Notes

5.1 Additional Information—Appendices C, D, and E are cross reference listings designed to assist the user in relating SAE marking symbols to SPI/PBI container codes as well as common plastic names and supplier trademarks. Appendix F references symbols for elastomers, based on ISO 1629, with potential use in plastic blends.

5.2 Marginal Indicia—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

PREPARED BY THE SAE PLASTICS COMMITTEE

APPENDIX A

REQUEST TO ADD NEW MARKING SYMBOLS AND/OR TRADEMARKS

A.1 Complete Figure A1 to apply for inclusion of new marking symbols and/or trademarks into SAE J1344.

Plastic or Plastic Blend "Family" Name: _____

(Check One)

Proposed Marking Symbol: _____ New Symbol _____

Existing _____

Supplier's Trademark (If any): _____

Supplier: _____

Name of Submitter: _____

Telephone Number: () _____

Date Submitted: _____

Signature: _____

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SAE

Standards Development and Research

Materials Staff Engineer

400 Commonwealth Drive

Warrendale, PA 15096-0001

NOTE—The procedure shown in Appendix B will be used to process requests for the addition of new symbols only.

Requests to add trademarks to cross reference listings will be handled as editorial changes.

FIGURE A1—REQUEST FORM TO ADD NEW MARKING SYMBOLS AND/OR TRADEMARKS

APPENDIX B

PROCESS FLOW CHART—ADDING NEW SYMBOLS TO J1344

B.1 See Figure B1.

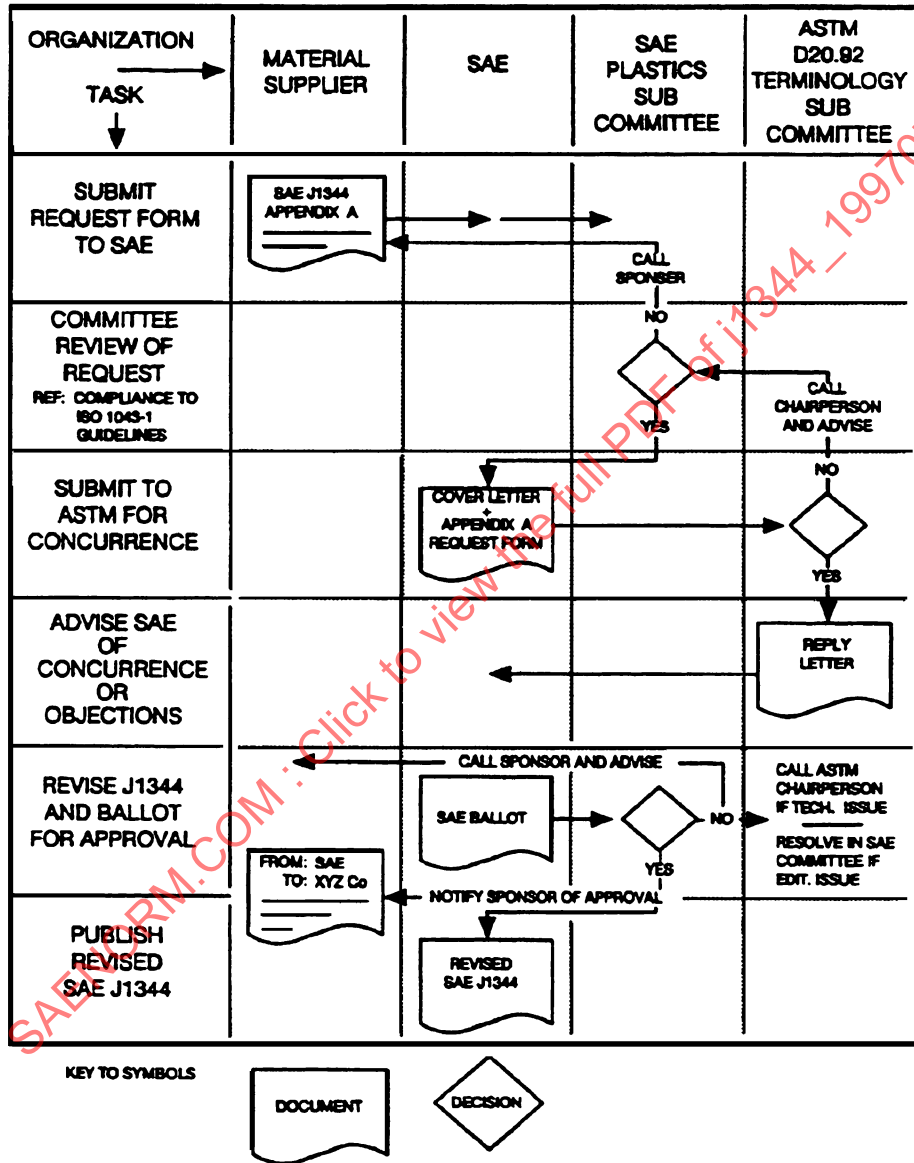


FIGURE B1—PROCESS FLOW CHART—ADDING NEW SYMBOLS TO SAE J1344

APPENDIX C

CROSS REFERENCE SYMBOLS TO COMMON NAMES/TRADEMARKS

C.1 See Table C1.

TABLE C1—CROSS REFERENCE SYMBOLS TO COMMON NAMES/TRADEMARKS

Standard Symbol	Previous	Example of Common Names and/or Trademarks ⁽¹⁾
AB		—
A/B/A		—
ABS		ABS, Cyclocac, Lustran, Novodur, Magnum, Terluran,
ABS+PA		Triax 1000 series
ABS+PC		Bayblend, Cycology, Pulse, Triax 2000 series, Stapron C
ABS+PTFE		Thermocomp AL
ABS+PVC		Lustran, Royalite
ABS+SMA	(ABS+S/MA)	Cadon
ABS+TPU	(ABS+TPUR)	Prevail
AES		Jet-Flex, Centrex
AMMA		—
ASA		Luran S, Centrex, Geloy
ASA+PC		Geloy, Terblend S
ASA+PMMA		Geloy 1320
ASA+PVC		Geloy GY 1200
CMC		—
CS		—
CA		Tenite
CAB		Tenite
CAP		Tenite
CN		Nitrocellulose
CP		Cellidor, Ethocel, Tenite
CPE		Tyrin
CPVC		TempRite, ProTherm
CP		—
CTA		—
EC		Ethocel
EP		Epon, Epotuf, Epolite, Epocast, DEN Epoxy Novolacs, D.E.R. Epoxy Resins
E/EA		—
E/MA		Formion, Surllyn, Optema, Emac, Bexloy W
E/TFE		Tefzel
E/VAC	(EVAC)	Elvax, Microthane
FCEA		—
FEP		Fluorocomp, Teflon, Hostafion
FF		—
LCP	(ARP)	Vectra, Xydar, Zenite
MF		Cymel, Diaron, Isomin, Melmac
PA+PE		Selar RB
PA+SAN		N5
PA6		Nylon 6, Akulon, Ashlene, Capron, Nydur, Nylatron, Nypel, Texalon, Thermocomp, Ultramid, Wellamid, Durethan, Grilon, Celanese Nylon, Zytel
PA66		Nylon 66, Akulon, Ashlene, Maranyl, Minlon, Nylafil, Nylatron, Texalon, Technyl, Ultramid, Vydine, Wellamid, Zytel, Grilon, Celanese Nylon

TABLE C1—CROSS REFERENCE SYMBOLS TO COMMON NAMES/TRADEMARKS (CONTINUED)

Standard Symbol	Previous	Example of Common Names and/or Trademarks ⁽¹⁾
PA46		Nylon 46, Stanyl
PA66/6		Nylon 66/6, Zytel, Wellamid, Capron, Ultramid C, Vydine
PA69		Nylon 69, Vydine
PA11		Nylon 11, Rilsan, RTP, Thermocomp, Lubricomp, CTI Nylon
PA12		Nylon 12, Grilamid, Rilsan, Thermocomp, Ashlene
PA610		Nylon 610, Hiloy, Maranyl, Nylafil, RTP, Ultramid S
PA612		Nylon 612, Grilon, Zytel, CTI Nylon, Lubricomp
PA6T/MPMDT		Polyamide copolymer based on terephthalic acid, hexamethylenediamine, and 2-methylpantemethylenediamine, Zytel HTN
PAE		—
PAEK		Kadel, Ultrapec, Victrex
PAI		Torlon
PARA		Aramid, Mindel, Vespel, Ixef
PAS	(PASU)	Radel
PAT		Apec, Ardel, Arylon, Durel, Econol
PB		Duraflex
PBT		Celanex, Petra, Pocan, Ultradur, Valox, Vandar, Wellite, Crastin
PBT+ASA		Ultradur S
PBT+PET		Celanex, Valox
PBT+PPE		Gemax
PC		Calibre, Lexan, Makrolon
PC+PBT		Makroblend, Valox, Xenoy
PC+PCT		Eastar, Eastalloy
PC+PE		Lexan
PC+PET		Maekroblend, Valox
PC+SMA	(PC+S/MA)	Arloy
PC+TPU	(PC+TPUR)	Texin
PCT		Thermox
PCTFE		Aclar, Halon, Kel-F
PDAP	(DAP)	Dapon, Durex, Poly-Dap
PDCPD		Metton LMR, Telene
PE-HD	(HDPE)	Alathon, Bakelite, Chevron HiD, Empee, Fortiflex, Hi-Fax, Hostalen, Lupolen, Marlex, Paxon, Petrothene, Polyfort, Vestolen
PE-LD	(LDPE)	Alathon, Bakelite, Empee, Esocrene Fortiflex, Petrothene
PE-LLD	(LLDPE)	Alathon, Bakelite, Esocrene, Fortiflex, Petrothene, Dowlex
PE-LMD	(LMDPE)	—
PE-ULD	(ULDPE)	Attane
PE-MD	(MDPE)	Bakelite, Esocrene, Fortiflex, Marlex, Petrothene
PEBA		Dynyl, Estamid(ester), Pebax, Vestamid
PEI		Ultem
PEK		Victrex PEK
PEOX	(PEO)	Hostalen
PES	(PESU)	Ultrason E, Radel A, Victrex PES
PET		Impet, Petlon, Petra, Rynite, Ultradur, Valox, Wellpet, Bexloy K
PET+PMMA		Ropet
PF		Phenolic, Durez, Plenco
PFF		—
PK		Carilon
PI		Envex, Gemon, Kinel, Pyralin, Skybond, Vespel
PIB		Oppanol B
PMMA		Acrylic, Acrylite, Diakon, Oroglass, Plexiglas, XT Polymer, Vedril

TABLE C1—CROSS REFERENCE SYMBOLS TO COMMON NAMES/TRADEMARKS (CONTINUED)

Standard Symbol	Previous	Example of Common Names and/or Trademarks ⁽¹⁾
PMMI		Kamax
PMP		TPX
POB		Ekkcel
POM		Acetal, Celcon, Delrin, Hostaform, Ultraform
POM+PTFE		Delrin AF, Thermocomp KL
PP		Adpro, Astryn, Azdel, Daplen, FB, Escorene, Hifax, Hostacom, Hostalen, Marlex, Moplen, Mytex, Novolen, Oleflo, Polyfort, Pro-fax, Tenite
PPA		Amodel
PPE	(PPO)	Noryl, Prevex (see BLENDS, Table 2)
PPE+PA	(PA+PPE)	Noryl GTX
PPE+PS		Noryl, Prevex
PPOX		—
PPS		Fortron, Ryton, Supec, Tedur
PPS+PTFE		Polycomp, Alfon SM
PPSU		Udel, Radel R, Ultrason
PS		Dylene, Durathon, Lustrex, Polystyrol, Tuf-Flex, Styron
PSU		Udel, Ultrason S
PSU+ABS		Mindel A
PSU+PC		Mindel S
PSU+PET		Mindel B
PTFE		Fluon, Hostaflon, Teflon
PUR		Adiprane, Bayflex, Casthetane, Cyanaprene, Desmopan, Spectrim, Estane, Elastoflex, Elastolit
PUR-RT		Isoplast
PVAC		Gelva, Vinylite
PVAL		Evanol, Gelvatol
PVB		Butvar, Vinylite, Butacite
PVC		Apex, Geon, Gracon, Pliovic, Polyvin, Unichem, Trosiplast, Vinoflex
PVC+CPE		Hostalite Z
PVC+NBR		Hycar, Paracil, Ozo, Vynite
PVC+PUR		DKE+450, Kydex
PVCA	(PVC+PU)	Vythene
PVF		Tedlar
PVFM		Formvar
PVDC		Saran
PVDF		Kynar
PVK		—
PVP		Luvican
SI		Silastic, NuSil, RTV-2, GE RTV Silicone
SAN		Lustran, Luran, Tyril
SB		Forsacryl, K-Resin
SMA	(S/MA)	Cadon, Dylark, Stapron S, Styrolux
SMA+PS	(S/MA+PS)	Cadon (see BLENDS, Table 2)
TPES		Thermoplastic Polyester
TECEA		Alcryn
TEO	(TPO)(E/P)	Ektar, Ferroflex, Moplen, Polytrope, Prolastomer, Dexflex, Salflex, Sarlink, Santoprene, Sarlink 2000, Sarlink 3000, Telcar, Trefsin, Vistaflex, Vyrarn
TEEE	(EEBC)	Hytrel, Lomod, Riteflex BP, TEP
TEEE + PBT		Vandar, Bexloy V
TPU	(TPUR)(RTPU)	Bayflex, Cytar, Estane, Orthane, Peilathane, Polypur, Texin, Desmopan, Elastollan

TABLE C1—CROSS REFERENCE SYMBOLS TO COMMON NAMES/TRADEMARKS (CONTINUED)

Standard Symbol	Previous	Example of Common Names and/or Trademarks ⁽¹⁾
TES	(SEBS)	Elexar, Kraton
UF		Plaskon, Skanopal
UP		BMC, SMC, XMC, Derakene, Premi-Glas, Selectron, Vibrin-Mat
VC/E		—
VC/E/MA		—
VC/MA		—

1. The trademarks listed are intended as a guide to aid the user in selecting the correct standard SAE symbol for the material under consideration. It is no intended or implied that the listing is a material approved for any given specification or application nor is the listing complete for any one plastic "family" name since additional materials may be available which are not marketed under a trademark.

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APPENDIX D

CROSS REFERENCE LIST
SPI/PBI PLASTIC CONTAINER MARKING CODES
TO
SAE PART MARKING SYMBOLS

D.1 See Figure D1.

<u>MATERIAL</u>	<u>SPI/PBI CODE</u>	<u>SAE CODE</u>
POLYETHYLENE TEREPHTHALATE	 PETE	> PET <
HIGH DENSITY POLYETHYLENE	 HDPE	> PE-HD <
POLYVINYL CHLORIDE	 V	> PVC <
LOW DENSITY POLYETHYLENE	 LDPE	> PE-LD <
POLYPROPYLENE	 PP	> PP <
POLYSTYRENE	 PS	> PS <
ALL OTHER RESINS	 OTHER	SEE TABLES 1 & 2

NOTE: SPI - THE SOCIETY OF THE PLASTICS INDUSTRY, INC
PBI - PLASTIC BOTTLE INSTITUTE

FIGURE D1—CROSS REFERENCE LIST SPI/PBI PLASTIC CONTAINER MARKING CODES
TO SAE PART MARKING SYMBOLS

APPENDIX E

CROSS REFERENCE LISTING—TRADEMARKS/SUPPLIERS

E.1 Table E1 is intended to assist in the cross referencing of trademarks as listed in Table C1 to their suppliers.

TABLE E1—CROSS REFERENCE LISTING—TRADEMARKS/SUPPLIERS

TRADEMARKS ⁽¹⁾	SUPPLIER		SYMBOL PLASTIC "FAMILY" NAME
ACLAR	AUSIMONT	PCTFE	POLYCHLOROTRIFLUOROETHYLENE
ACRYLITE	CYRO INDUSTRIES	PMMA	POLY(METHYLMETHACRYLATE)("ACRYLIC"
ADIPRANE	UNIROYAL INC.	PUR	POLYURETHANE, THERMOSET (UNSATURATED)
ADPRO	GENESIS POLYMERS	PP	POLYPROPYLENE
AKULON	DSM ENGINEERING PLASTICS	P6, PA66	POLYAMIDE 6 & 66—"NYLON 6 & 66"
ALATHON	DUPONT DE NEMOURS & CO.	PE-LD, PE-HD, PE-LLD	POLYETHYLENE, LOW, HIGH, LINEAR LOW DENSITY
ALCRYN	DUPONT DE NEMOURS & CO.	TECEA	THERMOPLASTIC ELASTOMER: CHLORINATED ETHYLENE ALLOY
ALTON	INTERNATIONAL POLYMERS	PPS+PTFE	POLYPHENYLENE SULFIDE + POLYTETRA FLUORETHYLENE
AMODEL	AMOCO CHEMICAL CORP	PPA	POLY PHTHALAMIDE
AMPOL	AMERICAN POLYMERS INC	CA	CELLULOSE ACETATE
APEC	BAYER CORP.	PAT	POLYARYLATE -POLYESTER, THERMOPLASTIC
APEX	TEKNOR APEX CO.	PVC	POLY(VINYL CHLORIDE)
ARALDRITE	CIBA-GEIGY CORP.	EP	EPOXIDE: EPOXY
ARDEL	AMOCO CHEMICAL CORP	PAT	POLYARYLATE -POLYESTER, THERMOPLASTIC
ARLOY	ARCO CHEMICAL CO	PC+SMA	POLYCARBONATE + STYRENE MALEIC ANHYDRIDE
ARNITE	DSM ENGINEERING PLASTICS	PBT, PET	POLYBUTYLENE TEREPHTHALATE, POLYETHYLENE TEREPHTHALATE
ARYLON	DUPONT DE NEMOURS & CO.	PAT	POLYARYLATE -POLYESTER, THERMOPLASTIC
ASHLENE	ASHLEY POLYMERS	PA6, PA66, PA12	POLYAMIDE 6, 66, & 12—"NYLON 6, 66 & 12"
ASTREL	AMOCO CHEMICAL CORP.	PAS	POLYARYLSULFONE
ASTRYN	MONTELL	PP	POLYPROPYLENE
AZDEL	AZDEL INC.	PP	POLYPROPYLENE
BAKELITE	UNION CARBIDE CORP.	PE-LD, PE-MD, PE-HD	POLYETHYLENE, LOW, MEDIUM, HIGH DENSITY
BAKELITE	UNION CARBIDE CORP.	PF	PHENOL FORMALDEHYDE
BAKELITE	UNION CARBIDE CORP.	PE-LLD	POLYETHYLENE, LINEAR LOW DENSITY
BAYBLEND	BAYER CORP.	ABS+PC	ACRYLONITRILE/BUTADIENE/STYRENE + POLYCARBONATE
BAYFLEX	BAYER CORP.	PUR	POLYURETHANE, THERMOSET
BAYFLEX	BAYER CORP.	TPU	POLYURETHANE THERMOPLASTIC ELASTOMER
BEXLOY	DUPONT DE NEMOURS & CO	PET	POLYETHYLENE TEREPHTHALATE
BEXLOY V	DUPONT DE NEMOURS & CO	TEEE + PBT	ETHER ESTER BLOCK COPOLYMER + POLYBUTYLENE TEREPHTHALATE
BEXLOY W	DUPONT DE NEMOURS & CO.	EMA	ETHYLENE/METHACRYLIC ACID
BUTACITE	DUPONT DE NEMOURS & CO.	PVB	POLY(VINYL BUTYRAL)
BUTVAR	BAYER CORP.	PVB	POLY(VINYL BUTYRAL)
CADON	BAYER CORP.	ABS	ACRYLONITRILE/BUTADIENE/STYRENE
CADON	MONSANTO CO.	ABS+SMA	ACRYLONITRILE/BUTADIENE/STYRENE + STYRENE MALEIC ANHYDRIDE
CADON	MONSANTO CO.	SMA	STYRENE MALEIC ANHYDRIDE
CALIBRE	DOW CHEMICAL CO.	PC	POLYCARBONATE
CAPRON	ALLIED SIGNAL	PA6, PA6/66	POLYAMIDE 6, 6/66—"NYLON 6, 6/66"

TABLE E1—CROSS REFERENCE LISTING—TRADEMARKS/SUPPLIERS (CONTINUED)

TRADEMARKS ⁽¹⁾	SUPPLIER		SYMBOL PLASTIC "FAMILY" NAME
CARILON	SHELL	PK	POLYKETONE
CELANESE	HOECHST CELANESE	PA66	POLYAMIDE 66("NYLON 66"
CELANEX	HOECHST CELANESE	PBT	POLYBUTYLENE TEREPHTHALATE
CELANEX	HOECHST CELANESE	PBT+PET	POLYBUTYLENE TEREPHTHALATE + POLYETHYLENE TEREPHTHALATE
CELCON	HOECHST CELANESE	POM	POLYOXYMETHYLENE: POLYFORMALDEHYDE — "ACETAL"
CENTREX	BAYER CORP.	ASA	ACRYLONITRILE/STYRENE/ACRYLATE
CENTREX	BAYER CORP.	ASA + AEC	ACRYLONITRILE/STYRENE/ACRYLATE + ACRYLONITRILE/ETHYLENE/STYRENE
CHEVRON H.D	CHEVRON CHEMICAL CO.	PE-HD	POLYETHYLENE, HIGH DENSITY
CORVEL	POLYMER CORP.	EP	EPOXIDE
CTI NYLON	CTI	PA11, PA6/12	POLYAMIDE 11, 6/12, "NYLON 11, 6/12"
CYANAPRENE	AMERICAN CYANAMID CO.	PUR	POLYURETHANE, THERMOSET (UNSATURATED)
CYCOLAC	GENERAL ELECTRIC CO.	ABS	ACRYLONITRILE/BUTADIENE/STYRENE
CYCOLOY	GENERAL ELECTRIC CO.	ABS+PC	ACRYLONITRILE/BUTADIENE/STYRENE + POLYCARBONATE
CYCOLIN	GENERAL ELECTRIC CO.	ABS + PBT	ACRYLONITRILE/BUTADIENE/STYRENE + POLYBUTYLENE TEREPHTHALATE
CYCOVIN K	GENERAL ELECTRIC CO.	ABS+PVC	ACRYLONITRILE/BUTADIENE/STYRENE + POLYVINYL CHLORIDE
CYREL	AMERICAN CYANAMID CO.	MD	MELAMINE-FORMALDEHYDE
CRASTIN	DUPONT DE NEMOURS & CO	PBT	POLYBUTYLENE TEREPHTHALATE
CYROLITE	CYRO INDUSTRIES	MMA/S/EA + B/ MMA/S	POLY(METHYL METHACRYLATE)/STYRENE, ETHYL ACRYLATE + POLY(BUTADIENE)/METHYL METHACRYLATE/STYRENE
CYTOR	UNKNOWN	TPU	POLYURETHANE, THERMOPLASTIC
DAPLEN	POLYDAN INTERNATIONAL	PP	POLYPROPYLENE
DAPON	POLYDAN INTERNATIONAL	PDAP	POLY(DIALLYL PHTHALATE)
DELTRIN	DUPONT DE NEMOURS & CO.	POM	POLYOXYMETHYLENE: POLYFORMALDEHYDE — "ACETAL"
DELTRIN AF	DUPONT DE NEMOURS & CO.	POM+PTFE	POLYOXYMETHYLENE + POLYTETRA FLUORETHYLENE
DERAKANE	DOW CHEMICAL CO.	EP	EPOXY VINYL ESTER RESINS
DESMOPAN	BAYER CORP.	PUR	POLYURETHANE, THERMOSET (UNSATURATED)
DEXFLEX	D&S PLASTICS	TEO	THERMOPLASTIC POLYOLEFIN ELASTOMER
DIAKON	ICI HYDE GROUP	PMMA	POLY(METHYL METHACRYLATE)—"ACRYLIC"
DIARON	REICHOOLD CHEMICALS INC.	MF	MELAMINE-FORMALDEHYDE
DIAMOND ABS	DIAMOND	ABS	ACRYLONITRILE BUTADIENE STYRENE
DKE+450	SUMITOMO CORP. OF AMERICA	PVC+PMMA	POLYVINYL CHLORIDE + POLYMETHYL METHACRYLATE
DOWLEX	DOW CHEMICAL CO.	PE-LLD	POLYETHYLENE: LINEAR, LOW
DURAFLEX	SHELL CHEMICAL CO.	PB	POLYBUTENE-1
DURATHAN	BAYER CORP.	PA6	POLYAMIDE 6—"NYLON 6"
DURATHON	BAYER CORP.	PS	POLYSTYRENE
DURETHAN	BAYER CORP.	PA6, PA66	POLYAMIDE 6 & 66—"NYLON 6 & 66"
DUREZ	OCCIDENTAL CHEMICAL	PDAP	POLYDIALLYL PHTHALATE)
DUREZ	OCCIDENTAL CHEMICAL	PF	PHENOL FORMALDEHYDE
DURILITE	UNKNOWN	EC	ETHYL CELLULOSE
DYLARK	ARCO CHEMICAL CO.	SMA	STYRENE MALEIC ANHYDRIDE
DYLENE	ARCO CHEMICAL CO.	PS	POLYSTYRENE
DYNYL	RHONE POULENC INC.	PEBA	POLYETHER BLOCK AMIDE, THERMOPLASTIC ELASTOMER
ECONOL	SOHIO CHEMICAL CO.	PAT	POLYARYLATE -THERMOPLASTIC POLYESTER
EKKCEL	CARBORUNDUM CO.	POB	POLY-P-OXYBENZOATE
EASTAPAC	EASTMAN CHEMICAL	PET	POLY(ETHYLENE TEREPHTHALATE)

TABLE E1—CROSS REFERENCE LISTING—TRADEMARKS/SUPPLIERS (CONTINUED)

TRADEMARKS ⁽¹⁾	SUPPLIER		SYMBOL PLASTIC "FAMILY" NAME
EASTAR	EASTMAN CHEMICAL, INC	PCT	POLYCYCLOHEXYLENE TEREPHTHALATE
EASTAR FB	EASTMAN CHEMICAL, INC	PET	POLY(ETHYLENE TEREPHTHALATE)
EASTAR MB	EASTMAN CHEMICAL, INC	PC+PCT	POLYCARBONATE + POLYCYCLOHEXYLENE TEREPHTHALATE
EASTAR MB	EASTMAN CHEMICAL, INC	PC+PET	POLYCARBONATE + POLYETHYLENE TEREPHTHALATE
ELASTOFLEX	BASF CORP.	PUR	POLYURETHANE, THERMOSET
ELASTOFOAM	BASF CORP.	PUR	POLYURETHANE, THERMOSET
ELASTOLIT	BASF CORP.	PUR	POLYURETHANE, THERMOSET
ELASTOLLAN	BASF CORP.	TPU	THERMOPLASTIC POLYURETHANE
ELEXAR	SHELL CHEMICAL CO.		STYRENE-BUTADIENE
ELEXAR	SHELL CHEMICAL CO.	TES	THERMOPLASTIC ELASTOMER—STYRENE BLOCK COPOLYMER
ELVAX	DUPONT DE NEMOURS & CO.	E/VAC	ETHYLENE/VINYL ACETATE
EMAC	CHEVRON	E/MA	ETHYLENE/METHACRYLIC ACRYLATE
EMPEE	MONMOUTH PLASTICS INC.	PE-LD, PE-MD	POLYETHYLENE, LOW, MEDIUM DENSITY
ENVEX	ROGERS CORP.	PI	POLYIMIDE
EPOCAST	CIBA-GEIGY	EP	EPOXIDE: EPOXY
EPOLITE	HEXCEL	EP	EPOXIDE: EPOXY
EPON	SHELL CHEMICAL CO.	EP	EPOXIDE: EPOXY
EPOTUF	REICHHOLD CHEMICALS INC.	EP	EPOXIDE: EPOXY
ESCORENE	EXXON CHEMICAL AMERICAS	PE-LD, PE-LLD, PE-MD	POLYETHYLENE: LOW, LINEAR LOW, MEDIUM DENSITY
ESCORENE	EXXON CHEMICAL AMERICAS	PP	POLYPROPYLENE
ESTANE	B.F. GOODRICH CHEMICAL	ABS+TPU	ACRYLONITRILE/BUTADIENE/ STYRENE + THERMOPLASTIC POLYURETHANE ELASTOMER
ESTANE	B.F. GOODRICH CHEMICAL	TPU	THERMOPLASTIC POLYURETHANE ELASTOMER
ETHOCEL	DOW CHEMICAL CO.	EC	ETHYL CELLULOSE
EVANOL	UNKNOWN	PVAL	POLY(VINYL ALCOHOL)
FERROFLEX	FERRO CORP.	TEO	THERMOPLASTIC POLYOLEFIN ELASTOMER
FIBERFIL	DSM ENGINEERING PLASTICS	ABS, PP	ACRYLONITRILE BUTADIENE STYRENE, POLYPROPYLENE
FIBERCO	POLYMER COMPOSITES INC.	PA6, PA66	POLYAMIDE 6 & 66—"NYLON 6 & 66"
FLUON	ICI AMERICAS INC.	PTFE	POLYTETRAFLUOROETHYLENE
FLUOROCOMP	LNP CORPORATION	FEP	PERFLUORO (ETHYLENE/PROPYLENE)
FORMION	A. SCHULMAN INC.	E/MA	ETHYLENE METHACRYLATE ACID
FORMVAR	MONSANTO CO.	PVFM	POLY(VINYL FORMAL)
FORSACRYL	UNKNOWN	SAN	STYRENE-ACRYLONITRILE
FORTIFLEX	SOLVAY POLYMERS INC.	PE-LD, PE-MD, PE-HD, PE-LLD	POLYETHYLENE, LOW, MEDIUM, HIGH, LINEAR LOW DENSITY
FORTRON	HOECHST CELANESE	PPS	POLY(PHENYLENE SULFIDE)
GE RTV	GENERAL ELECTRIC CO.	SI	SILICONE
GELOY 1200	GENERAL ELECTRIC CO.	ASA+PVC	ACRYLONITRILE/STYRENE/ ACRYLATE + POLYVINYL CHLORIDE
GELOY 1320	GENERAL ELECTRIC CO.	ASA+PMMA	ACRYLONITRILE/STYRENE/ ACRYLATE + POLYMETHYL METHACRYLATE BLEND
GELVA	MONSANTO CO.	PVAC	POLY(VINYL ACETATE)
GELVATOL	MONSANTO CO.	PVAL	POLY(VINYL ALCOHOL)
GEMAX	GENERAL ELECTRIC CO.	PBT+PPE	POLYBUTYLENE TEREPHTHALATE + POLYPHENYLENE ETHER BLEND
GEMON	GENERAL ELECTRIC CO.	PI	POLYIMIDE
GEON	B.F. GOODRICH CHEMICAL	PVC	POLY(VINYL CHLORIDE)

TABLE E1—CROSS REFERENCE LISTING—TRADEMARKS/SUPPLIERS (CONTINUED)

TRADEMARKS ⁽¹⁾	SUPPLIER		SYMBOL PLASTIC "FAMILY" NAME
GEON	B.F. GOODRICH CHEMICAL	VC/VDC	VINYL CHLORIDE/VINYLDENE CHLORIDE
GRACON	W.R. GRACE CO.	PVC	POLY(VINYL CHLORIDE)
GRILON	EMS AMERICAN GRILON	PA 6, PA66, PA11, PA12	POLYAMIDE 6, 66, 11, AND 12—"NYLON 6, 66, 11, AND 12"
HALAR	ALLIED SIGNAL	PCTFE	POLYCHLOROTRIFLUOROETHYLENE
HALAR	ALLIED SIGNAL	PTFE	POLYTETRAFLUOROETHYLENE
HIFAX	MONTELL	TEO	THERMOPLASTIC POLYOLEFIN ELASTOMER
HOSTACOM	HOECHST AG	PP	POLYPROPYLENE
HOSTADUR	HOECHST AG	PET	POLYETHYLENE TEREPHTHALATE
HOSTAFLO	HOECHST AG	PTFE	POLYTETRAFLUOROETHYLENE
HOSTAFORM	HOECHST AG	POM	POLYOXYMETHYLENE: POLYFORMALDEHYDE—"ACETAL"
HOSTALEN	HOECHST AG	PE-HD	POLYETHYLENE, HIGH DENSITY
HOSTALEN GUR	HOECHST AG	PE-UHMW	POLYETHYLENE, ULTRA-HIGH MOLECULAR WEIGHT
HOSTALEN PP	HOECHST AG	PP	POLYPROPYLENE
HOSTALITE Z	HOECHST AG	PVC+CPE	POLYVINYL CHLORIDE + CHLORINATED POLYETHYLENE
HYCAR	B.F. GOODRICH CHEMICAL	PVC+NBR	POLYVINYL CHLORIDE + NITRILE BUTADIENE RUBBER
HYTREL	DUPONT DE NEMOURS & CO.	TEEE	THERMOPLASTIC ELASTOMER - ETHER ESTER BLOCK COPOLYMER
IMPET	HOECHST CELANESE	PET	POLYETHYLENE TEREPHTHALATE
ISOMIN	UNKNOWN	MF	MELAMINE-FORMALDEHYDE
ISOPLAST	DOW CHEMICAL CO.	PUR	RIGID THERMOPLASTIC POLYURETHANE
IXEF	SOLVAY	PARA	POLYARYLAMID (POLYARAMIDE)
JETFLEX	MULTIBASE	AES	ACRYLONITRILE/ETHYLENE/STYRENE
KADEL		PAEK	POLYARYLEETHERKETONE
KAMAX	ROHM & HAAS CO.	PMMI	POLY(METHYLMETHACRYLATE IMIDE)
KEL-F	3M COMPANY	PCTFE	POLYCHLOROTRIFLUOROETHYLENE
KINEL	RHONE-POULENC INC.	PI	POLYIMIDE
KOBLAND	ENICHEM	ABS + PC	ACRYLONITRILE/BUTADIENE/STYRENE
KRALASTIC FVM	UNIROYAL INC.	ABS + PVC	ACRYLONITRILE/BUTADIENE/STYRENE + POLYVINYL CHLORIDE
KRATON	SHELL CHEMICAL CO.	TES	THERMOPLASTIC ELASTOMER STYRENE BLOCK COPOLYMER
KYDEX	ROHM & HAAS CO.	PVC+PMMA	POLYVINYL CHLORIDE + POLYMETHYL METHACRYLATE
KYNAR	ATOHAAS	PVDF	POLY(VINYLDENE FLUORIDE)
K-RESINS	PHILLIPS CHEMICAL CO.	S/B	STYRENE-BUTADIENE
LEXAN	GENERAL ELECTRIC CO.	PC	POLYCARBONATE PLASTICS
LEXAN	GENERAL ELECTRIC CO.	PC+PE	POLYCARBONATE + POLYETHYLENE
LOMOD	GENERAL ELECTRIC CO.	TEEE	THERMOPLASTIC ELASTOMER (ETHER ESTER BLOCK COPOLYMER)
LUPOLAN	BASF CORP.	PE-HD	POLYETHYLENE, HIGH DENSITY
LURAN	BASF CORP.	ASA	ACRYLONITRILE/STYRENE/ACRYLATE
LURAN	BASF CORP.	SAN	STYRENE/ACRYLONITRILE
LUSTRAN	BAYER CORP.	ABS	ACRYLONITRILE/BUTADIENE/STYRENE
LUSTRAN	BAYER CORP.	ABS+PVC	ACRYLONITRILE/BUTADIENE/STYRENE + POLYVINYL CHLORIDE
LUSTRAN	BAYER CORP.	SAN	STYRENE/ACRYLONITRILE
LUSTREX	POLYSAR INC.	PS	POLYSTYRENE
LUVICAN	BASF CORP.	PVK	POLYVINYL CARBAZOLE
MAKROBLAND	BAYER CORP.	PC+PBT	POLYCARBONATE + POLYBUTYLENE TEREPHTHALATE
MAKROBLAND	BAYER CORP.	PC+PET	POLYCARBONATE + POLYETHYLENE TEREPHTHALATE
MAKROLON	BAYER CORP.	PC	POLYCARBONATE PLASTICS
MAGNUM	DOW CHEMICAL CO.	ABS	ACRYLONITRILE/BUTADIENE/STYRENE

TABLE E1—CROSS REFERENCE LISTING—TRADEMARKS/SUPPLIERS (CONTINUED)

TRADEMARKS ⁽¹⁾	SUPPLIER		SYMBOL PLASTIC "FAMILY" NAME
MARLEX	PHILLIPS CHEMICAL CO.	PE-MD, PE-HD	POLYETHYLENE, MEDIUM, HIGH DENSITY
MARLEX	PHILLIPS CHEMICAL CO.	PP	POLYPROPYLENE
MELMAC	PHILLIPS CHEMICAL CO.	MF	MELAMINE-FORMALDEHYDE
METTON LMR	METTON AMERICA INC.	PDCPD	POLYDICYCLOPENTADIENE
MICROTHANE	UNKNOWN	EVAC	ETHYLENE/VINYL ACETATE
MINDEL A	AMOCO CHEMICAL CORP.	PSU+ABS	POLYSULFONE + ABS
MINDEL B	AMOCO CHEMICAL CORP.	PSU+PET	POLY(PHENYLENE SULFONE)(POLYSULFONE + POLYETHYLENE TEREPHTHALATE
MINDEL S	AMOCO CHEMICAL CORP.	PSU+PC	POLYSULFONE + POLYCARBONATE
MINLON	DUPONT DE NEMOURS & CO.	PA66	POLYAMIDE 66—"NYLON 66"
MOPLEN	MONTELL	PP	POLYPROPYLENE
MULTI-ABS	MULTIBASE	ABS	ACRYLONITRILE BUTADIENE STYRENE
MULTIFLEX	MULTIBASE	SEBS	
N5	THERMOFIL INC.	PA+SAN	POLYAMIDE + STYRENE/ACRYLONITRILE
MYTEX	EXXON CHEMICAL CO	PP	POLYPROPYLENE
NORYL	GENERAL ELECTRIC CO.	PPE	POLYPHENYLENE ETHER PLASTICS
NORYL	GENERAL ELECTRIC CO.	PPE+PS	POLYPHENYLENE ETHER + HIGH IMPACT POLYSTYRENE
NORYL GTX	GENERAL ELECTRIC CO.	PPE+PA	POLYAMIDE + POLYPHENYLENE ETHER
NOVODUR	BAYER CORP.	ABS	ACRYLONITRILE/BUTADIENE/STYRENE
NOVOLEN	BASF CORP.	PP	POLYPROPYLENE
NUSIL	NUSIL	SI	SILICONE
NYDUR	BAYER CORP.	PA6	POLYAMIDE 6—"NYLON 6"
NYLATRON	DSM ENGINEERING PLASTICS	PA6, PA66	POLYAMIDE 6 & 66—"NYLON 6 & 66"
NYPEL	ALLIED SIGNAL	PA6	POLYAMIDE 6—"NYLON 6"
OLEFLO	AVISUN	PP	POLYPROPYLENE
OPPANOL B	BASF CORP.	PIB	POLYISOBUTYLENE
OPTEMA	EXXON	E/MA	ETHYLENE/METHACRYLIC ACID
OROGLAS	ROHM & HAAS CO.	PMMA	POLY(METHYL METHACRYLATE)—"ACRYLIC"
ORTHANE	EAGLE Picher PLASTICS DIV.	TPU	POLYURETHANE, THERMOPLASTIC
OZO	UNKNOWN	PVC+NBR	POLYVINYL CHLORIDE + NITRILE BUTADIENE RUBBER
PARACRIL	UNIROYAL INC.	PVC+NBR	POLYVINYL CHLORIDE + NITRILE BUTADIENE RUBBER
PAXON	ALLIED SIGNAL	PE-HD	POLYETHYLENE, HIGH DENSITY
PEBAX	ELF ATO	PEBA	POLYETHER BLOCK AMIDE-THERMOPLASTIC ELASTOMER
PEEK	VICTREX U.S.A., INC.	PAEK	POLYARYL ETHER KETONE
PELLETHANE	DOW CHEMICAL CO.	TPU	THERMOPLASTIC POLYURETHANE ELASTOMER
PENTON	HERCULES INC.	CPE	CHLORINATED POLYETHYLENE
POCAN	BAYER CORP.	PBT	POLYBUTYLENE TEREPHTHALATE
PETLON	BAYER CORP.	PET	POLYETHYLENE TEREPHTHALATE
PETRA	ALLIED SIGNAL	PBT	POLYBUTYLENE TEREPHTHALATE
PETRA	ALLIED SIGNAL	PET	POLYETHYLENE TEREPHTHALATE
PETROTHENE	QUANTUM CHEM., USI DIV.	PE-LD, PE-MD, PE-HD, PE-LLD	POLYETHYLENE, LOW, MEDIUM, HIGH, LINEAR LOW DENSITY
PLASKON	PLASKON ELECTRONIC MTLS.	UF	UREA-FORMALDEHYDE
PLENCO	PLASTICS ENGINEERING CO.	PF	PHENOL-FORMALDEHYDE
PLEXIGLAS	ROHM & HAAS CO.	PMMA	POLY(METHYL METHACRYLATE)—"ACRYLIC"
PLIOLITE	GOODYEAR TIRE & RUBBER	S/B	STYRENE-BUTADIENE
PLIOVIC	GOODYEAR TIRE & RUBBER	PVC	POLY(VINYL CHLORIDE)
POLYCOMP	LNP CORPORATION	PPS+PTFE	POLYPHENYLENE SULFIDE + FLUOROETHYLENE