



SURFACE VEHICLE RECOMMENDED PRACTICE

J1344™

MAR2017

Issued 1980-10
Revised 1997-07
Stabilized 2017-03

Superseding J1344 JUL1997

Marking of Plastic Parts

RATIONALE

The committee has deemed this standard to be a duplication of work that can be found in the ISO and ASTM standards. Since there are limited resources available to maintain it properly, the committee has chosen to stabilize this standard.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Plastics Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2017 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
<http://www.sae.org>

SAE WEB ADDRESS:

Full document details: [SAE J1344_201703](http://standards.sae.org/J1344_201703)

SAE values your input. To provide feedback on this
Technical Report, please visit
http://standards.sae.org/J1344_201703

Documents
Document Sharing Hub

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

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.

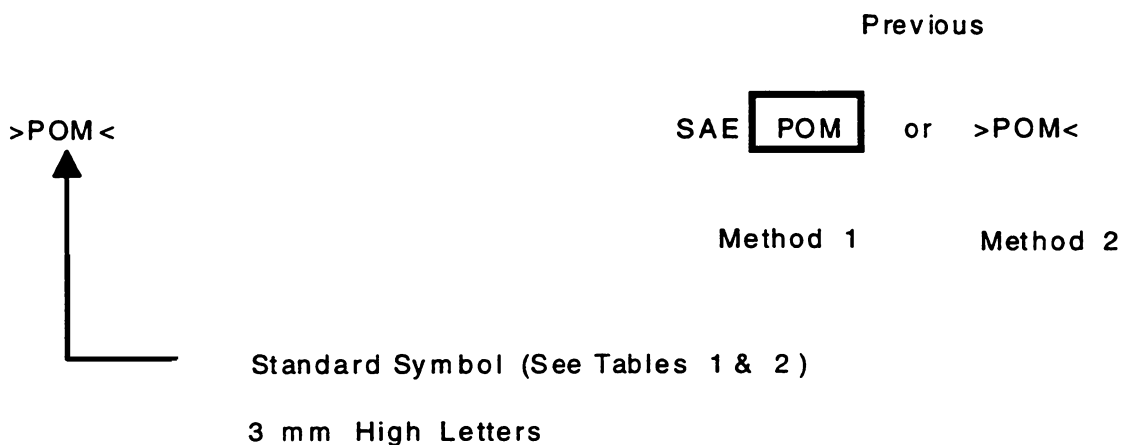


FIGURE 1—STANDARD MARKING SYMBOL

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	
Vinyle chloride/ethylene/methyl acrylate		VC/E/MA	
Vinyl chloride/methyl acrylate		VC/MA	
Vinyl choride/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 terphthalate) + poly(ethylene terphthalate)	PBT+PET	
Poly(butylene terphthalate) + poly(phenylene ether)	PBT+PPE	
Ether ester block copolymer + polybutylene terphthalate	TEE+PBT	
Poly(ethylene terphthalate) + 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.