



International Material Data System

Annex I to the IMDS001 Recommendation	IMDS 001a
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1 Material Classifications in IMDS

1.1 Introduction

The classification system for materials in MDSs is a mixture of composition (substances in the material) and production [class. 1 – 4, 7]; property [class. 5]; and application [class. 6, 8, 9] of the material. Materials should preferably be classified according to their composition/properties and not according to their application. However, polymeric materials that fit into a 6.x classification, should preferably be assigned to that classification instead of a 5.x classification. Materials in electronic applications should preferably be classified according to their composition (e.g. copper instead of electronics). The classification should be as detailed as possible, for example, if possible, avoid classification 1.1 but use 1.1.1 or 1.1.2 instead.

Every homogeneous material has to be described as a separate material. “Homogeneous” means that there is a consistent material composition which cannot be separated mechanically into two or more different materials. “Mechanical separation” here means that it is generally possible to separate materials by means of cutting, trimming and abrasion. Homogeneous materials are for example plastics, metals, alloys and coatings.

Materials such as metals with a coating (example: plated galvanized steel or copper wire with PVC coating) or layered composition materials (example: copper over-molded with polymer) are most likely not homogeneous and each layer needs to be described as a separate material with appropriate classification of each material, e.g. classification 3.3 for zinc coatings.

An elemental breakdown of materials is not allowed. All materials also need to be reported as they appear on the vehicle. For example, if describing a polymer, you need to describe it in the cured state and not describe the processing chemicals (solvents and monomers etc.) which are not present in final state. If you do include a gas, liquid, or processing chemical as a basic substance, you need to verify that it is still present in the final (hardened and dried up) part as used in a vehicle.

Many of the metal materials have been published in IMDS by the IMDS Committee. Before creating your own material in these classifications, please check if there is an appropriate material already published by the IMDS Committee. Do not use materials published by other suppliers unless they are your supplier. In cases where there is an IMDS Committee material and a supplier material published for the same material, the IMDS Committee material should preferably be used. To find IMDS Committee materials, use the search function for materials and check “published MDSs” for origin to find these materials.

In the following sections, information on each classification and examples are included. It is important to note that given thresholds reflect common concentrations which might deviate in special materials.



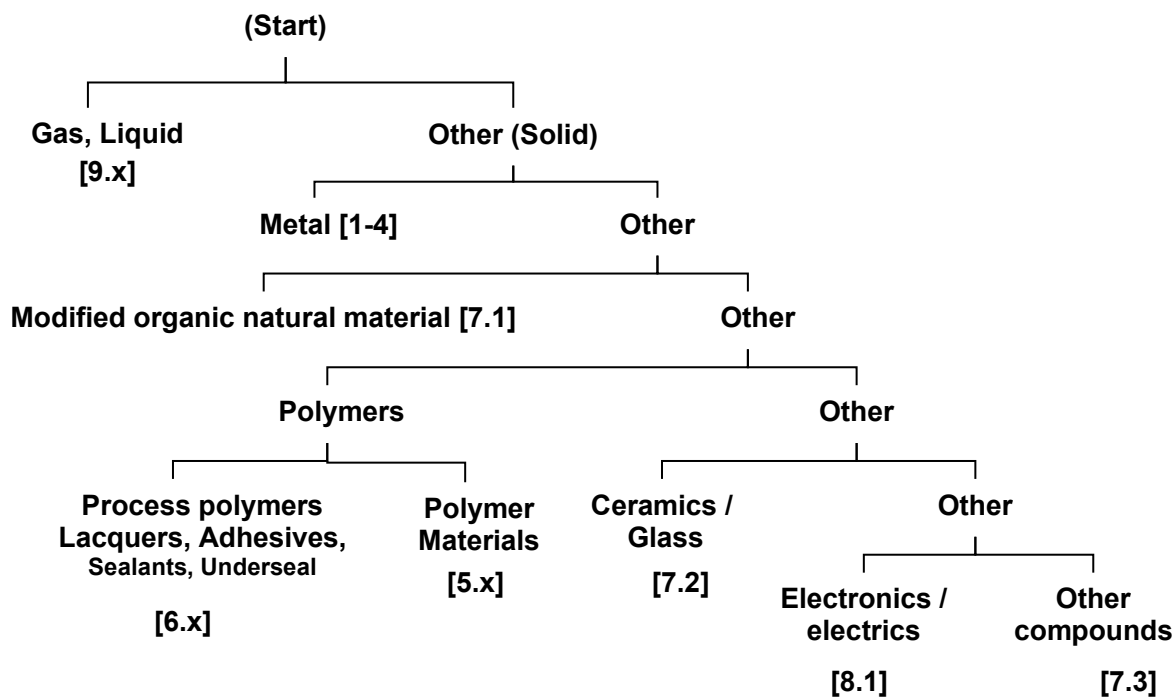
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1.2 Flow chart for selecting classification

For reducing variation in selecting VDA classification, the order of judgement is introduced below.

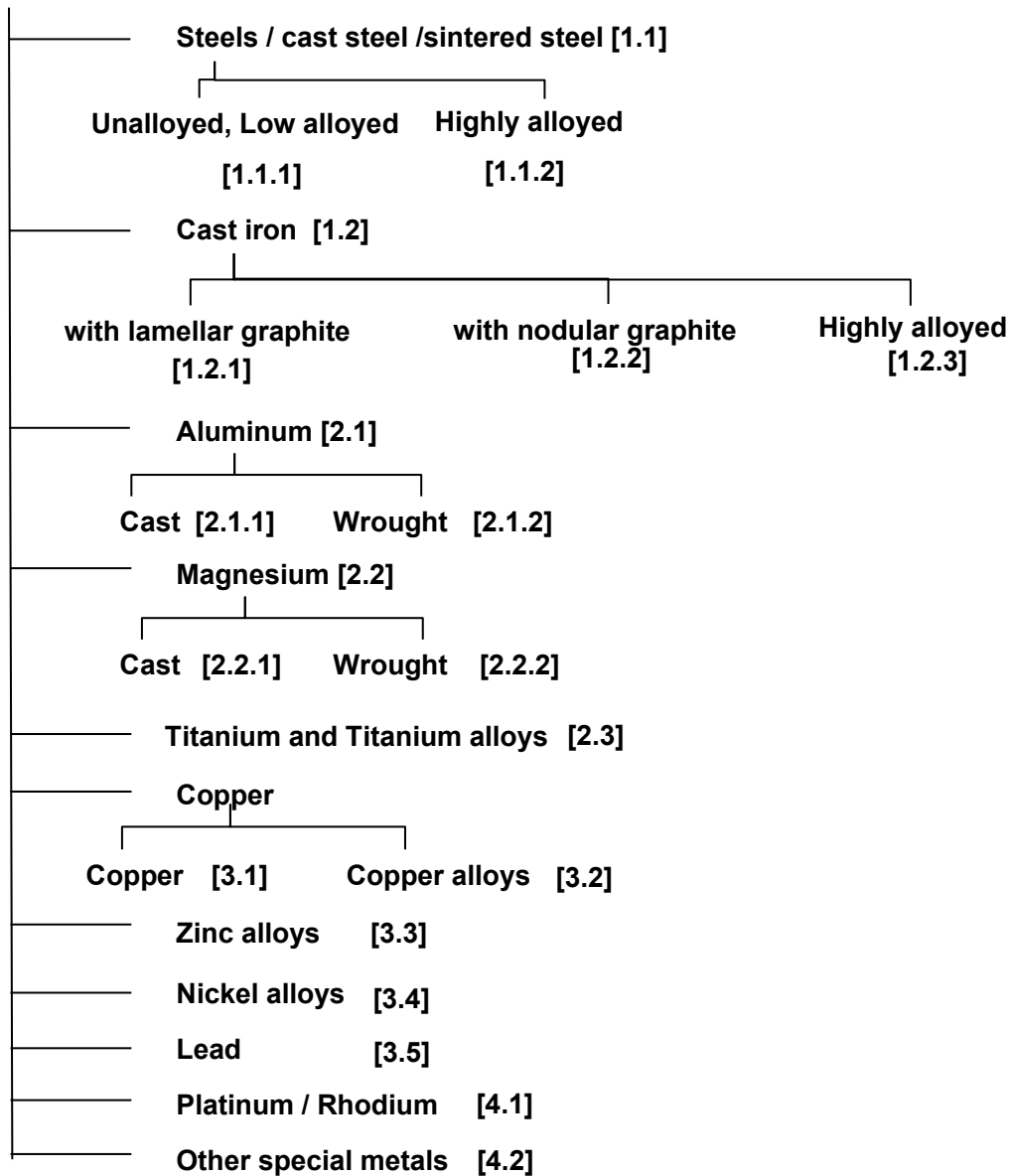


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1.3 Classification table

Classification	Definition	Example / Designation
0 Undefined	This classification cannot be used.	
1 Steel and iron materials	This classification cannot be used.	
1.1 Steels / cast steel / sintered steel	This classification should be used only when classifications 1.1.1 and 1.1.2 are not appropriate, for example for sintered steel. Sintered materials with both metal oxides and metals do not fit in this classification, for example ceramic magnets.	Sint-D01 P1011Z
1.1.1 Unalloyed, low alloyed	A content of at least 95% iron is expected. Generally, the content is above 98%.	DC 01 SPCC
1.1.2 Highly alloyed	There are two definitions for highly alloyed steels. In IMDS, the second definition is generally understood to be the "right one" <ol style="list-style-type: none"> 1. If the content of at least one alloying element is above 5 % you speak of highly alloyed steel. 2. Highly alloyed steel consists of less than 95% iron and more than 5% further metallic alloying components. 	X30Cr13 S42000 SUS420
1.2 Cast iron	This classification cannot be used. However, legacy data can be continued to be used.	
1.2.1 Cast iron with lamellar graphite / tempered cast iron	Lamellar graphite is composed of lamellae, a thin flat scale, membrane, or layer of graphite (carbon) as opposed to nodular, which is approximately spherical.	EN-GJL-100 FC100
1.2.2 Cast iron with nodular graphite / vermicular cast iron	Nodular graphite flakes are used in approximately spherical cast iron part.	EN-GJS-400-15 FCD400-15

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Classification	Definition	Example / Designation
1.2.3 Highly alloyed cast iron		EN-GJSA-XNiCr20-2 (Synonym: EN-JS 3011) FCDA-NiCr 20 2
2 Light alloys, cast and wrought alloys	This classification cannot be used.	
2.1 Aluminum and aluminum alloys	This classification should be used only when classifications 2.1.1 or 2.1.2 are not appropriate, for example for aluminum coatings	
2.1.1 Cast aluminum alloys	Aluminum alloys produced by being poured into a mold while in liquid form.	EN AC-ALMg9 ADC5
2.1.2 Wrought aluminum alloys	Aluminum alloys fashioned or shaped to a desired form by a gradual process of cutting hammering, scraping, pressing or stretching.	EN AW-ALMg1,5 A5005 Foil
2.2 Magnesium and magnesium alloys	This classification should be used only when classifications 2.2.1 or 2.2.2 are not appropriate, for example for coatings.	
2.2.1 Cast magnesium alloys	Magnesium alloys produced by being poured into a mold while in liquid form.	EN-MCMgAl5Mn MDC4
2.2.2 Wrought magnesium alloys	Magnesium alloys fashioned or shaped to a desired form by a gradual process of cutting, hammering, scraping, pressing or stretching.	Class 2 (Synonym: MGA2)
2.3 Titanium and titanium alloys		Titanium unalloyed (Grade 3) TTH480
3 Heavy metals, cast and wrought alloys	This classification cannot be used.	
3.1 Copper (e.g. copper amounts in cable harnesses)	This classification should be used for pure copper with a content of more than 99 % of copper.	Copper (Controlled Oxygen) C1100

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Classification	Definition	Example / Designation
3.2 Copper alloys	This classification should be used for copper fused with smaller amounts of other metals.	CuAl5As BCuP-5
3.3 Zinc alloys	This classification should be used for zinc, zinc alloys and zinc coatings.	Zinc (Type II, anodes), zinc-nickel, zinc-iron, Zn99.95
3.4 Nickel alloys	This classification should be used for nickel, nickel alloys and nickel coatings.	Nickel Alloy (ACI CZ-100) NW2200
3.5 Lead	This classification should be used when there is almost 100% of lead in a material, for example in accumulators, lead coatings, solders with more than 80 % of lead.	Lead and lead compounds in batteries PEPb-1
4 Special metals	This classification cannot be used.	
4.1 Platinum / Rhodium	This classification should be used for platinum and rhodium metals or alloys, for example in engine catalysts	Refined platinum (99.95) Pt
4.2 Other special metals	This classification should be used for all metals or metal alloys which cannot be classified in the other 1.x-4.x classifications. This classification should not be used for metal oxides	Gold, silver, tungsten, elemental silicon, tin, solder
5 Polymer materials	This classification cannot be used.	
5.1 Thermoplastics	This classification cannot be used.	

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Classification	Definition	Example / Designation																																																						
5.1.a Filled Thermoplastics	This classification should be used for thermoplastic materials containing 5% or more substances listed in the IMDS group Fillers/reinforcing materials and used as filler.	<p>Fillers e.g. according to the definition in ISO 1043-2. Examples for filler symbol samples:</p> <table border="1"> <thead> <tr> <th>Symbol</th> <th>Material</th> <th>Form / Structure</th> </tr> </thead> <tbody> <tr> <td>BD</td> <td>Boron</td> <td>powder</td> </tr> <tr> <td>CD</td> <td>Carbon, Graphite</td> <td>powder</td> </tr> <tr> <td>CF</td> <td>Carbon</td> <td>fiber</td> </tr> <tr> <td>DD</td> <td>Alumina trihydrate</td> <td>powder</td> </tr> <tr> <td>ED</td> <td>Clay</td> <td>powder</td> </tr> <tr> <td>GB</td> <td>Glass</td> <td>beads, spheres, balls</td> </tr> <tr> <td>GF</td> <td>Glass</td> <td>fiber</td> </tr> <tr> <td>GM</td> <td>Glass</td> <td>mat (thick)</td> </tr> <tr> <td>GS</td> <td>Glass</td> <td>flake</td> </tr> <tr> <td>KD</td> <td>Calcium Carbonate</td> <td>powder</td> </tr> <tr> <td>MD</td> <td>Mineral, Metal</td> <td>powder</td> </tr> <tr> <td>MF</td> <td>Mineral, Metal</td> <td>fiber</td> </tr> <tr> <td>AF</td> <td>Aramid</td> <td>fiber</td> </tr> <tr> <td>SD</td> <td>Synthetic organic</td> <td>powder</td> </tr> <tr> <td>TD</td> <td>Talcum</td> <td>powder</td> </tr> <tr> <td>WD</td> <td>Wood</td> <td>powder</td> </tr> <tr> <td>WF</td> <td>Wood</td> <td>fiber</td> </tr> </tbody> </table>	Symbol	Material	Form / Structure	BD	Boron	powder	CD	Carbon, Graphite	powder	CF	Carbon	fiber	DD	Alumina trihydrate	powder	ED	Clay	powder	GB	Glass	beads, spheres, balls	GF	Glass	fiber	GM	Glass	mat (thick)	GS	Glass	flake	KD	Calcium Carbonate	powder	MD	Mineral, Metal	powder	MF	Mineral, Metal	fiber	AF	Aramid	fiber	SD	Synthetic organic	powder	TD	Talcum	powder	WD	Wood	powder	WF	Wood	fiber
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Classification	Definition	Example / Designation																																																																																																												
5.1.b Unfilled Thermoplastics	This classification should be used for thermoplastic materials containing less than 5% substances used as filler.	<p>According to the definition in ISO 1043-1 & ISO 16396-1 for PA</p> <p>Nomenclature samples:</p> <table border="1"> <tbody> <tr><td>ABAK</td><td>PBAK</td><td>POB</td></tr> <tr><td>ABS</td><td>PBT</td><td>POM</td></tr> <tr><td>ACS</td><td>PC</td><td>Polyether</td></tr> <tr><td>AEPDS</td><td>PCTA</td><td>PP</td></tr> <tr><td>AES</td><td>PCTFE</td><td>PPA</td></tr> <tr><td>AMMA</td><td>PDCPD</td><td>PPE</td></tr> <tr><td>APAO</td><td>PE</td><td>PPOX</td></tr> <tr><td>ASA</td><td>PE-C</td><td>PPS</td></tr> <tr><td>EEAK</td><td>PE-HD</td><td>PPSU</td></tr> <tr><td>EMA</td><td>PE-LLD</td><td>PS</td></tr> <tr><td>ETFE</td><td>PE-LD</td><td>PSU</td></tr> <tr><td>EVAC</td><td>PE-LMD</td><td>PTFE</td></tr> <tr><td>EVOH</td><td>PE-MD</td><td>PPT</td></tr> <tr><td>FEP</td><td>PE-UHMW</td><td>PVAC</td></tr> <tr><td>LCP</td><td>PEBA</td><td>PVAL</td></tr> <tr><td>MBS</td><td>PEEK</td><td>PVC</td></tr> <tr><td>MMABS</td><td>PEEKK</td><td>PVC-C</td></tr> <tr><td>PA6</td><td>PEEST</td><td>PVCAC</td></tr> <tr><td>PA66</td><td>PEI</td><td>PVDC</td></tr> <tr><td>PA66/6</td><td>PEK</td><td>PVDF</td></tr> <tr><td>PA46</td><td>PEKEKK</td><td>PVF</td></tr> <tr><td>PA69</td><td>PEKK</td><td>PVFM</td></tr> <tr><td>PA11</td><td>PEOX</td><td>PVK</td></tr> <tr><td>PA12</td><td>PES</td><td>PVP</td></tr> <tr><td>PA610</td><td>PET</td><td>SAN</td></tr> <tr><td>PA612</td><td>PFA</td><td>SMAH</td></tr> <tr><td>PA6T/MPMDT</td><td>PFEP</td><td>SMS</td></tr> <tr><td>PAE</td><td>PFF</td><td>VCE</td></tr> <tr><td>PAEK</td><td>PIS</td><td>VCEMAK</td></tr> <tr><td>PAI</td><td>PIR</td><td>VCEVAC</td></tr> <tr><td>PAN</td><td>PK</td><td>VCMAC</td></tr> <tr><td>PAR</td><td>PMI</td><td>VCMMA</td></tr> <tr><td>PARA</td><td>PMMA</td><td>VCOAK</td></tr> <tr><td>PAS</td><td>PMMI</td><td>VCVAC</td></tr> <tr><td>PAT</td><td>PMP</td><td>VCVDC</td></tr> <tr><td>PB</td><td>PMS</td><td></td></tr> </tbody> </table>	ABAK	PBAK	POB	ABS	PBT	POM	ACS	PC	Polyether	AEPDS	PCTA	PP	AES	PCTFE	PPA	AMMA	PDCPD	PPE	APAO	PE	PPOX	ASA	PE-C	PPS	EEAK	PE-HD	PPSU	EMA	PE-LLD	PS	ETFE	PE-LD	PSU	EVAC	PE-LMD	PTFE	EVOH	PE-MD	PPT	FEP	PE-UHMW	PVAC	LCP	PEBA	PVAL	MBS	PEEK	PVC	MMABS	PEEKK	PVC-C	PA6	PEEST	PVCAC	PA66	PEI	PVDC	PA66/6	PEK	PVDF	PA46	PEKEKK	PVF	PA69	PEKK	PVFM	PA11	PEOX	PVK	PA12	PES	PVP	PA610	PET	SAN	PA612	PFA	SMAH	PA6T/MPMDT	PFEP	SMS	PAE	PFF	VCE	PAEK	PIS	VCEMAK	PAI	PIR	VCEVAC	PAN	PK	VCMAC	PAR	PMI	VCMMA	PARA	PMMA	VCOAK	PAS	PMMI	VCVAC	PAT	PMP	VCVDC	PB	PMS	
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5.2 Thermoplastic Elastomers	Thermoplastic elastomers are materials which act like elastomers at room temperature but show thermoplastic characteristics when heated.	<p>According to the definition in ISO 18064</p> <p>Nomenclature samples:</p> <table border="1" data-bbox="943 562 1366 1489"> <tbody> <tr><td>AEM+TPC-ET</td><td>TPU-ARCE</td></tr> <tr><td>TPA-EE</td><td>TPU-AREE</td></tr> <tr><td>TPA-ES</td><td>TPU-ARES</td></tr> <tr><td>TPA-ET</td><td>TPU-ARET</td></tr> <tr><td>TPC-EE</td><td>TPV-(ACM+PP)</td></tr> <tr><td>TPC-ES</td><td>TPV-(ENR+PP)</td></tr> <tr><td>TPC-ET</td><td>TPV-(EPDM+PE)</td></tr> <tr><td>TPC-ET+AEM</td><td>TPV-(EPDM+PP)</td></tr> <tr><td>TPC-ET+EMAK</td><td>TPV-(NBR+PP)</td></tr> <tr><td>TPC-ET+PBT</td><td></td></tr> <tr><td>TPC-ET+PBT-I</td><td>TPV-(NR+PP)</td></tr> <tr><td>TPC-ET-I</td><td>TPV-(ENR+PP)</td></tr> <tr><td>TPO-(EPDM+PP)</td><td>TPV-(IIR+PP)</td></tr> <tr><td>TPO(EPM+PP)</td><td>TPV-(SEBS/oil+PP)</td></tr> <tr><td>TPS-SBS</td><td>TPZ-(NBR+PVC)</td></tr> <tr><td>TPS-SEBS</td><td>TPZ-(PVC/plasticizer+PVC)</td></tr> <tr><td>TPS-SEPS</td><td>TPZ-(PE-C)</td></tr> <tr><td>TPS-SIS</td><td>TPZ-(Fluoropolymer)</td></tr> <tr><td>TPU-ALES</td><td>TPZ-(Ionomer, ethylene-acrylic acid copolymer group)</td></tr> <tr><td>TPU-ALET</td><td>TPZ-(Syn. 1,2-BR)</td></tr> </tbody> </table>	AEM+TPC-ET	TPU-ARCE	TPA-EE	TPU-AREE	TPA-ES	TPU-ARES	TPA-ET	TPU-ARET	TPC-EE	TPV-(ACM+PP)	TPC-ES	TPV-(ENR+PP)	TPC-ET	TPV-(EPDM+PE)	TPC-ET+AEM	TPV-(EPDM+PP)	TPC-ET+EMAK	TPV-(NBR+PP)	TPC-ET+PBT		TPC-ET+PBT-I	TPV-(NR+PP)	TPC-ET-I	TPV-(ENR+PP)	TPO-(EPDM+PP)	TPV-(IIR+PP)	TPO(EPM+PP)	TPV-(SEBS/oil+PP)	TPS-SBS	TPZ-(NBR+PVC)	TPS-SEBS	TPZ-(PVC/plasticizer+PVC)	TPS-SEPS	TPZ-(PE-C)	TPS-SIS	TPZ-(Fluoropolymer)	TPU-ALES	TPZ-(Ionomer, ethylene-acrylic acid copolymer group)	TPU-ALET	TPZ-(Syn. 1,2-BR)
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Classification	Definition	Example / Designation																																																																					
5.3 Elastomers	Elastomers are materials that can be deformed by stressing and compression. They return to their original configuration after removing the stress.	<p>According to the definition in ISO 1629</p> <p>Nomenclature samples:</p> <table border="1"> <tr><td>ABR</td><td>EU</td><td>NOR</td></tr> <tr><td>ACM</td><td>EU</td><td>NR</td></tr> <tr><td>AEM</td><td>EVM</td><td>OT</td></tr> <tr><td>AFMU</td><td>FEPM</td><td>PBR</td></tr> <tr><td>ANM</td><td>FFKM</td><td>PE-Si</td></tr> <tr><td>AU</td><td>FKM</td><td>PMQ</td></tr> <tr><td>BIIR</td><td>FMQ</td><td>PSBR</td></tr> <tr><td>BIMS</td><td>FVMQ</td><td>PUR-Si</td></tr> <tr><td>BR</td><td>FZ</td><td>PVMQ</td></tr> <tr><td>BR-E</td><td>FZ-P</td><td>PZ</td></tr> <tr><td>CIIR</td><td>GCO</td><td>PZ-P</td></tr> <tr><td>CM</td><td>GECO</td><td>SBR</td></tr> <tr><td>CO</td><td>GPO</td><td>SEBS</td></tr> <tr><td>CR</td><td>HNBR</td><td>SEBM</td></tr> <tr><td>CSM</td><td>IIR</td><td>SEPM</td></tr> <tr><td>EBM</td><td>IM</td><td>SIBR</td></tr> <tr><td>ECO</td><td>IR</td><td>SIS</td></tr> <tr><td>ENR</td><td>MQ</td><td>S-SBR</td></tr> <tr><td>EOM</td><td>MSBR</td><td>VMQ</td></tr> <tr><td>EOT</td><td>NBIR</td><td>XBR</td></tr> <tr><td>EPDM</td><td>NBM</td><td>XCR</td></tr> <tr><td>EPM</td><td>NBR</td><td>XNBR</td></tr> <tr><td>E-SBR</td><td>NIR</td><td>XSBR</td></tr> </table>	ABR	EU	NOR	ACM	EU	NR	AEM	EVM	OT	AFMU	FEPM	PBR	ANM	FFKM	PE-Si	AU	FKM	PMQ	BIIR	FMQ	PSBR	BIMS	FVMQ	PUR-Si	BR	FZ	PVMQ	BR-E	FZ-P	PZ	CIIR	GCO	PZ-P	CM	GECO	SBR	CO	GPO	SEBS	CR	HNBR	SEBM	CSM	IIR	SEPM	EBM	IM	SIBR	ECO	IR	SIS	ENR	MQ	S-SBR	EOM	MSBR	VMQ	EOT	NBIR	XBR	EPDM	NBM	XCR	EPM	NBR	XNBR	E-SBR	NIR	XSBR
ABR	EU	NOR																																																																					
ACM	EU	NR																																																																					
AEM	EVM	OT																																																																					
AFMU	FEPM	PBR																																																																					
ANM	FFKM	PE-Si																																																																					
AU	FKM	PMQ																																																																					
BIIR	FMQ	PSBR																																																																					
BIMS	FVMQ	PUR-Si																																																																					
BR	FZ	PVMQ																																																																					
BR-E	FZ-P	PZ																																																																					
CIIR	GCO	PZ-P																																																																					
CM	GECO	SBR																																																																					
CO	GPO	SEBS																																																																					
CR	HNBR	SEBM																																																																					
CSM	IIR	SEPM																																																																					
EBM	IM	SIBR																																																																					
ECO	IR	SIS																																																																					
ENR	MQ	S-SBR																																																																					
EOM	MSBR	VMQ																																																																					
EOT	NBIR	XBR																																																																					
EPDM	NBM	XCR																																																																					
EPM	NBR	XNBR																																																																					
E-SBR	NIR	XSBR																																																																					
5.4 Duromers	This classification cannot be used Legacy data can be continued to be used.																																																																						
5.4.1 Polyurethane	Polyurethane are materials with polyols and isocyanates as precursor (process chemicals). The quality could be hard and brittle or soft and elastic depending on production process.	PUR																																																																					

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Classification	Definition	Example / Designation																														
5.4.2 Unsaturated polyester	Unsaturated polyester are polyester resins made of unsaturated and saturated dicarboxylic acids and diols.	UP resin																														
5.4.3 Other duromers	This classification should be used for all duromers that cannot be classified under 5.4.1 or 5.4.2.	<p>Nomenclature samples</p> <table border="1"> <tr> <td>CA</td> <td>EC</td> <td>MPF</td> </tr> <tr> <td>CAB</td> <td>EP</td> <td>PVE</td> </tr> <tr> <td>CABPMA</td> <td>PVAC</td> <td>PDAP</td> </tr> <tr> <td>CAP</td> <td>CF</td> <td>PAK</td> </tr> <tr> <td>CEF</td> <td>CS</td> <td>PF</td> </tr> <tr> <td>CF</td> <td>CSF</td> <td>PI</td> </tr> <tr> <td>CMC</td> <td>EP</td> <td>PVB</td> </tr> <tr> <td>CN</td> <td>FF</td> <td>UF</td> </tr> <tr> <td>CP</td> <td>MC</td> <td></td> </tr> <tr> <td>CTA</td> <td>MF</td> <td></td> </tr> </table>	CA	EC	MPF	CAB	EP	PVE	CABPMA	PVAC	PDAP	CAP	CF	PAK	CEF	CS	PF	CF	CSF	PI	CMC	EP	PVB	CN	FF	UF	CP	MC		CTA	MF	
CA	EC	MPF																														
CAB	EP	PVE																														
CABPMA	PVAC	PDAP																														
CAP	CF	PAK																														
CEF	CS	PF																														
CF	CSF	PI																														
CMC	EP	PVB																														
CN	FF	UF																														
CP	MC																															
CTA	MF																															
5.5 Polymeric compounds (e.g. inseparable laminated trim parts)	This classification cannot be used.																															
5.5.1 Plastics (in polymeric compounds)	This classification cannot be used. Legacy data can be continued to be used.																															

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Classification	Definition	Example / Designation																				
5.5.2 Textiles (in polymeric compounds)	Textiles are flexible materials consisting of a network of natural or artificial fibers. This includes fibers, yarns, cloth and knitted fabrics.'	<p>According to the definition in ISO 2076, use classification 5.5.2 for polymer fibres only. For natural fibre textiles defined in ISO 6938, use classification 7.1. For glass and carbon fibres use classification 7.2 and 7.3 respectively.</p> <p>Nomenclature samples:</p> <table border="1"> <tr><td>ALG-Fibre</td><td>EL-Fibre</td></tr> <tr><td>AR-Fibre</td><td>MAC-Fibre</td></tr> <tr><td>CA-Fibre</td><td>PA-Fibre</td></tr> <tr><td>CLF-Fibre</td><td>PAN-Fibre</td></tr> <tr><td>CLY-Fibre</td><td>PE-Fibre</td></tr> <tr><td>CMD-Fibre</td><td>PES-Fibre</td></tr> <tr><td>CTA-Fibre</td><td>PI-Fibre</td></tr> <tr><td>CUP-Fibre</td><td>PP-Fibre</td></tr> <tr><td>CV-Fibre</td><td>PTFE-Fibre</td></tr> <tr><td>ED-Fibre</td><td>PVAL-Fibre</td></tr> </table>	ALG-Fibre	EL-Fibre	AR-Fibre	MAC-Fibre	CA-Fibre	PA-Fibre	CLF-Fibre	PAN-Fibre	CLY-Fibre	PE-Fibre	CMD-Fibre	PES-Fibre	CTA-Fibre	PI-Fibre	CUP-Fibre	PP-Fibre	CV-Fibre	PTFE-Fibre	ED-Fibre	PVAL-Fibre
ALG-Fibre	EL-Fibre																					
AR-Fibre	MAC-Fibre																					
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CMD-Fibre	PES-Fibre																					
CTA-Fibre	PI-Fibre																					
CUP-Fibre	PP-Fibre																					
CV-Fibre	PTFE-Fibre																					
ED-Fibre	PVAL-Fibre																					
6 Process polymers	This classification cannot be used.																					
6.1 Lacquers	<p>This classification should be used for clear or colored synthetic organic coatings that typically dry to form a film by evaporation of the solvent.</p> <p>The substances must be given in their final cured state - dried and without solvents.</p>	Lacquers, paint, topcoat, powder coating																				

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Classification	Definition	Example / Designation
6.2 Adhesives, sealants	<p>This classification should be used for adhesives, bonding agents, adhesion promoter and highly filled thermally or electrically conductive materials.</p> <p>The substances must be given in their final cured state - dried and without solvents and hardener.</p> <p>This classification should not be used for solders or complete textile adhesives tapes which consist of several materials.</p>	Adhesives, hot melt adhesives, adhesion promoters, glue, die attach adhesive
6.3 Underseal	<p>This classification should be used for materials used to protect underbody or junctions from corrosion, mainly consisting on a PVC basis.</p> <p>The substances must be given in their final cured state - dried and without solvents.</p> <p>This classification should not be used for anti-corrosion agents and waxes.</p>	Sealers
7 Other materials and material compounds (scope of mixture)	This classification cannot be used.	
7.1 Modified organic natural materials (e.g. leather, wood, cardboard, cotton fleece)	<p>This classification should be used for materials deriving from organic natural materials which could be treated with a chemical or physical procedure (finishing) without changing quality and composition.</p> <p>This classification should not be used for natural rubber, latex, graphite, activate carbon and minerals.</p>	Leather, wood, particular board, chipboard, fiberboard, paper, cardboard, natural fibres according to ISO 6938 like cotton, wool, hemp

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Classification	Definition	Example / Designation
7.2 Ceramics / glass	This classification should be used for UVCB materials like glass, silicate ceramic and enamel as well as technical ceramics such as ferrites, silicon carbides and boron nitride.	PCB ceramic, glass fiber, metal oxides, ferrite, glass wool, aluminum nitride, titanium nitride, titan nitride coating, chromium nitride coating, aluminum nitride coating, tungsten carbide
7.3 Other compounds (e.g. friction linings)	This classification should only be used for solid materials which do not fit into any other category.	Diamond, DLC (Diamond Like Carbon), quartz, carbon fiber, active carbon, graphite, friction materials, cement, minerals, semi-conductors like Si/GaAs-wafers, some coatings (passivation, chromate film, phosphate, CVD, PVD)
8 Electronics / electrics	This classification cannot be used.	
8.1 Electronics (e.g. pc boards, displays)	<p>This classification can be used for reporting small electronic component (less than 5 g) in parts such as printed circuit boards and displays.</p> <p>It should not to be used for entire electric assemblies.</p> <p>Metals and solders used in PCB or electronics have to be classified according to their composition.</p>	Materials for displays or electronic components where an allocation to any of the above named classifications is not definitely possible.
8.2 Electrics	This classification cannot be used. Legacy data can be continued to be used.	
9 Fuels and auxiliary means	This classification cannot be used.	
9.1 Fuels	This includes materials, which are used as fuels such as petrol (gasoline), diesel and hydrogen.	Petrol, gasoline, diesel, hydrogen
9.2 Lubricants	This includes all materials, that are used as lubricants	Oil, grease, fat, wax, MoS
9.3 Brake fluid	This includes all materials that are used as brake fluid in braking systems.	Brake fluid

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Classification	Definition	Example / Designation
9.4 Coolant / other glycols	This classification should be used for coolants in absorbers, oil coolers and cooling systems of electrical HV accumulators.	Ethylene glycol
9.5 Refrigerant	This classification should be used for coolants in air conditions.	R134a, R1234yf, carbon dioxide
9.6 Washing water, battery acids	This classification should be used for water-based materials with additives to clean windows and headlights and for battery acids.	Water, washer fluid, sulfuric acid
9.7 Preservative	This classification should be used for materials that are used as corrosion protective agents on metal surfaces or biocidal coatings that are applied in an aqueous matrix (i.e. not embedded in a polymer). This classification should not be used for zinc coatings, wax layers and underseals.	Anticorrosion oil
9.8 Other fuels and auxiliary means	This classification should be used for all materials that do not fit in any other classification	Filling gas, ignitable compounds, electrolytes, urea

1.4 Special Materials

This section lists some special categories of materials and how they should be classified.

1.4.1 Composite materials

A composite material is a homogeneous material that consists of two or more materials to be classified as different classification, in the case of single use. If a composite material has a specific matrix material, the classification should be chosen based on the matrix material. If not, it should be classified as 7.3. The matrix material should not be hidden by a Joker even if the filler material is 90wt% or more. Example see section 1.4.2 Magnetic materials.

For composite materials in a matrix (Classification 5.x) a symbol is optional.

1.4.2 Magnetic materials

In a metallic magnet, the alloying elements must be listed. In the case of a metallic magnet, none of the basic substances should contain oxygen (be a metal oxide). The material classification should be selected based on the material composition.

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- Metallic magnets should be classified in one of the classifications 1-4 that best fits the composition. For permanent magnets/magnetically hard materials, classification 4.2 is usually used (e.g. rare earth based alloys such as Sm-Co 5)
- For ceramic magnets, the basic substances have to be given as metal oxides. They should be classified in 7.2.
- Metal powders or metal oxides can also be used within a plastic matrix. In this case, the correct classification for the plastic matrix should be used (see section 1.4.1 - Composite materials).

A typical example of a magnetic composite material in a matrix is rubber with magnetic materials. Here rubber is the matrix, so classification should be 5.3 even if portion of rubber is around 8% (less than 10%)

1.4.3 Carbon fiber and glass fiber in polymeric matrix

A carbon/glass fiber reinforced polymer cannot be considered as a homogenous material. It consists of carbon/glass filaments that are combined to a carbon/glass fiber cloth. This cloth gets covered by a polymer. That is, it should consist of at least two materials. One material for the carbon/glass fiber that should be classified as 7.3 for carbon and 7.2 for glass. A second material for the polymer which should be classified according to its property.

This should not be mixed up with a polymer which contains carbon or glass short fibers used as a filler or carbon black used as a pigment. Those materials are homogeneous and have to be classified according the property of the plastic matrix.

1.4.4 Coatings

Coatings should either be classified according to:

- their main constituent, that is Zn, Al, Cu, Ni, Au and Sn
- 6.1 (Lacquers)
- 7.2 (Ceramics / glass)
- 7.3 (Other compounds (e.g. friction linings))

References in parenthesis are to the IMDS recommendation where these coatings are discussed further.

Below coatings should be classified according to their main constituent:

- Hot dip coatings (IMDS 007)
- Metallic e-plate (electrolytically deposited) coatings (IMDS 007 and IMDS 008)
- Electroless plating coatings (IMDS 008)

Below coatings should be classified according to 6.1 (Lacquers):

- Sealant film coatings (IMDS 008)
- Coatings which matrix is a polymer

Below coatings should be classified according to 7.2 (Ceramics / glass)

- Nitrides (titan, chromium, aluminium)
- Carbides



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Below coatings should be classified according to 7.3 (Other compounds (e.g. friction linings)):

- Passivation coatings (IMDS 008)
- Chromate film coatings
- Phosphate coatings (IMDS 011)
- DLC (diamond like carbon)
- CVD (chemical vapour deposition)
- PVD (physical vapour coating)

2 Further guidance

This section lists some examples.

2.1 Specific Requirements for Automotive Lubricants – Material Classification 9.2

Definition:

Automobile lubricants are products that are applied directly in the vehicle and remain throughout the entire vehicle life cycle (life-span of the lubricant) or are replaced during the life cycle by fresh oils/greases. These are not process lubricants like such as hydraulic oils for operating presses; heat transfer oils for operating hot-oil facilities; cooling lubricants for operating tools; corrosion protection oils which are not to be reported.

Structure:

The MDS representing the lubricant must be created:

- According to the final composition in the automobile (for example in the case of lubricant sprays, evaporated solvents are not to be included)
- According to Recommendation IMDS 001 rules and guidelines
- As material type MDS (not as components or semi-components), containing: basic substances, confidential substances and/or jokers / wildcards (highly confidential substances).
 - **Primary constituent:** present in the lubricant in high quantities; the primary constituents must be reported, irrelevant of their presence on the GADSL list (reportable substances).
 - **Additives:** present in the lubricant in smaller quantities; consist of at least one basic substance or a mix of primary constituents.
 - **Confidential additives:** are high confidential substances, which are not declarable or prohibited according to GADSL, not an SVHC, do not appear on a Renault list, or do not require an application code and where disclosure is not demanded (See definition of Jokers/Wildcards in Rec001).

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The following figure represents a typical MDS structure for a lubricant (Material Classification 9.2):

Primary Constituent – Oils:

For creation of automotive lubricants, there are primary constituent available in the category of “Basic Oils”. These substances do not contain any substance that is declarable or prohibited according to GADSL, an SVHC, appears on the Renault BGO list, or requires an application code.

If your oils contain such kind of substances, they have to be reported separately.

The following is a result of a substance search “basic oil” in the Name Field.

The screenshot shows the 'Substance Search' interface with the following search criteria: Name / Synonym: basic oil, GADSL: duty-to-declare, GADSL: prohibited, REACH-SVHC, SC requested, Group, and Status: active. The results table is as follows:

Name	CAS No.	EU-Index	EINECS-No.	Synonym	GADSL / SVHC
Alkyl imidazoline, for lubricants	-	-	-	Basic oil: Alkyl imidazoline, for lubricants	-
Amine borate, for Lubricants	-	-	-	Basic Oil: Amine borate, for Lubricants	-
Amine neutralised carboxylic acids, for Lubricants	-	-	-	Basic Oil: Amine neutralised carboxylic acids, for Lubri...	-
Amine neutralised phosphoric acid esters, for Lub...	-	-	-	Basic Oil: Amine neutralised phosphoric acid esters, fo...	-
Ester Oil, natural, for lubricants	-	-	-	Basic Oil: Ester Oil, natural, for lubricants	-
Ester Oil, synthetic, for lubricants	-	-	-	Basic Oil: Ester Oil, synthetic, for lubricants	-
Hydrogenated polyalphaolefin Oil, for lubricants	-	-	-	Basic Oil: Hydrogenated polyalphaolefin Oil, for lubrica...	-
Mineral Oil, for lubricants	-	-	-	Basic Oil: Mineral Oil, for lubricants	-
Perfluorinated Polyetheroil, for lubricants	-	-	-	Basic Oil: Perfluorinated Polyetheroil, for lubricants	-
Polyalkylated Naphthalene for Lubricants	-	-	-	Basic Oil: Polyalkylated Naphthalene	-
Polyalkylene glycol Oil, synthetic, for lubricants	-	-	-	Basic Oil: Polyalkylene glycol Oil, synthetic, for lubrica...	-
Polyalphaolefin Oil, synthetic, for lubricants	-	-	-	Basic Oil: Polyalphaolefin Oil, synthetic, for lubricants	-
Polyolefin amide alkeneamine, for lubricants	-	-	-	Basic oil: Polyolefin amide alkeneamine, for lubricants	-
Silicon oil, for lubricants	-	-	-	Basic Oil: Silicon oil, for lubricants	-

Primary Constituent – Thickeners:

For creation of automotive lubricants, there are primary constituent available in the category of “Thickener”. These substances do not contain any substance that is declarable or prohibited according to GADSL, an SVHC, appears on the Renault BGO list, or requires an application code. If your thickeners contain such kind of substances, they have to be reported separately. The following is a result of a substance search “thickener” in the Name Field.

The screenshot shows a search result for 'Lubricant ABC' with the following constituents:

- ▲ Ester Oil, synthetic, for lubricants (Basic Oil) → **Primary constituents**
- ▲ Aluminium complex soap for lubricants (Thickener) → **Additives**
- ▲ Substances to be reported (see GADSL-list!) → **Additives**
- ▲ Further additives / substances not prohibited or reportable to the GADSL → **Confidential additives**

The screenshot shows the 'Substance Search' interface with the following search criteria:

- Name / Synonym: thickener
- CAS No.: (empty)
- EU-Index: (empty)
- EINECS-No.: (empty)
- GADSL: duty-to-declare: (dropdown)
- GADSL: prohibited: (dropdown)
- REACH-SVHC: (dropdown)
- SC requested: (dropdown)
- Group: (dropdown)
- Status: active

Buttons: Bulk Change, BSL Export, Search

Name	CAS No.	EU-Index	EINECS-No.	Synonym	GADSL / SVHC
Aluminium complex soap for lubricants	-	-	-	Thickener: Aluminium complex soap for lubricants	-
Aluminium soap for lubricants	-	-	-	Thickener: Aluminium soap for lubricants	-
Barium complex soap, carboxylates for lubricants	-	-	-	Thickener: Barium complex soap, carboxylates for lubr...	-
Barium soap for lubricants	-	-	-	Thickener: Barium soap for lubricants	-
Calcium complex soap for lubricants	-	-	-	Thickener: Calcium complex soap for lubricants	-
Calcium soap for lubricants	-	-	-	Thickener: Calcium soap for lubricants	-
Lithium complex soap for lubricants	-	-	-	Thickener: Lithium complex soap for lubricants	-
Lithium soap for lubricants	-	-	-	Thickener: Lithium soap for lubricants	-
Polyurea for lubricants	-	-	-	Thickener: Polyurea for lubricants	-
Sodium soap for lubricants	-	-	-	Thickener: Sodium soap for lubricants	-

Range Values

The range values of the basic substances must meet the requirements of Recommendation 001.

Change Management:

Material data sheets released prior to a new version of Recommendation 001 that changed permitted range values are not required to be reworked to change the Range Values.

2.2 Additional information on the creation of MDSs for Thermoplastics – Material Classifications 5.1.x

A Thermoplastic polymer compound is a homogenous mixture of a basic polymer and functional additives (e.g. fillers, plasticizers, flame retardants etc.). When creating material MDSs for a thermoplastic (material classification 5.1.x), a wizard will guide you through the symbol creation process in order to achieve the correct symbol of the polymer material.

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Composition of the material symbol

The selected material classification permits creation of Name and Symbol field entries using dropdown selections derived from the IMDS Basic Polymer List. Therefore please select the symbols/abbreviated terms suitable for the material.

Classification filled Thermoplastics

Basic polymers ISO 1043-1 PA66

Fillers/reinforcing materials ISO 1043-2 GF 30 %

Plasticizers ISO 1043-3 (optional)

Flame retardants ISO 1043-4 (optional)

Composed symbol PA66-GF30

It is also possible to adapt the symbol manually (lowest input field). This is necessary for materials with more than one filler (e. g. glassfibre GF and mineral powder MD).
Example: PA6-(GF15+MD10); here you can add "(...+MD10)" manually.

OK

After completing the wizard, you need to select the substances (e.g. *basic polymers* and functional additives) from the basic substance list.

Should you have more than one filler, you can adjust the Composed Symbol with the necessary information on this screen or edit the symbol on the ingredients page. The percentage (%) of fillers in the pull-down menu is represented in increments of 5%. If you are using a range for the filler content, select the percentage that falls within the range of substance. If you are using a fixed filler content that does not fit in the preselected 5% increments, you can edit this number either directly in the wizard or later on the ingredients page of the MDS. However, the 5% increment is generally seen as accurate enough for the symbol.

In the basic substance list, you can find:

- *Basic polymers* according to ISO 1043-1 by searching for „basic polymer“ in the name field
- *Impact-modified basic polymers* according to ISO 1043-1 by searching for “basic polymer impact modified” in the name field
- *Fillers* according to ISO 1043-2 by searching for „ISO 1043-2“ in the name field
- *Plasticizers* according to ISO 1043-3 by searching for „ISO 1043-3“ in the name field
- *Flame retardants* according to ISO 1043-4 by searching for „ISO 1043-4“ in the name field

These ISO 1043 type entries must not be used in place of declarable or prohibited substances (see GADSL [suppliers to Renault: BGO list]), an SVHC or if they require an application code.

Any of those colorants, fillers, plasticizers or flame retardants must be listed separately.

In Thermoplastics, it is possible to have sub-materials. These sub-materials are usually masterbatches or concentrates (basic polymers with colorants/pigments, flame retardants,



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etc.). Sub-materials are normally used in materials in amounts of 1 to 5%. Consequently, the substances contained in these types of sub-materials are typically diluted in the top-level material to a level of 0.5 to 3%. If a thermoplastic material consists of sub-materials, any restrictions concerning the substance ranges and sum of wildcards and confidential substances do not apply to the sub-materials but are calculated with regard to the topmost material level (cf. IMDS 001, Rule 5.1.A and fig. 7, p. 24).

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Example for selection from the Basic Substance List:

The screenshot shows the Substance Search interface with the search criteria field containing 'basic polymer'. The search results table lists various basic polymers such as ABS, AD, ARAK, and ABS-145A. A text box at the bottom of the screenshot contains the following text:

Search for basic polymers ISO 1043-1: "basic polymer"
 Result: All basic polymers ISO 1043-1

The bottom right corner of the screenshot shows a status bar with a 'Menu' button and the text 'Total records found: 44'.

The screenshot shows the Substance Search interface with the search criteria field containing 'basic polymer impact modified'. The search results table lists various impact modified polymers such as PA6-1, PA6-145A, and PA6-121. A text box at the bottom of the screenshot contains the following text:

Search for basic polymers impact modified ISO 1043-1: "basic polymer impact modified"
 Result: All basic polymers impact modified ISO 1043-1

The bottom right corner of the screenshot shows a status bar with a 'Menu' button and the text 'Total records found: 39'.

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Search Criteria

Name / Synonym: ISO 1043-2

CAS No.:

EU-index:

ENECs-No.:

GADSL: duty-to-declare

GADSL: prohibited

REACH-SVHC

Group:

View:

Name	CAS No.	EU-index	ENECs No.	GADSL / SVHC	Synonym
AR-Fibre	-	-	-	-	ISO 1043-2
Boron	7440-42-8	-	231-151-2	-	ISO 1043-2
Calcium-carbonate	477-99-1	-	201-409-9	-	ISO 1043-2
Carbon	7440-44-0	-	231-153-3	-	ISO 1043-2
Cellulose fibre	-	-	-	-	ISO 1043-2
CF-Fibre	-	-	-	-	ISO 1043-2
GF-Fibre	-	-	-	-	ISO 1043-2
glass spheres	-	-	-	-	ISO 1043-2
Graphite	7882-42-5	-	231-955-3	-	ISO 1043-2
CS-Fibres	-	-	-	-	ISO 1043-2
Kevlar	1332-59-7	-	-	-	ISO 1043-2
Kevlar	-	-	-	-	ISO 1043-2
Mineral powder	-	-	-	-	ISO 1043-2
Silicate	-	-	-	-	ISO 1043-2
Talc (Magnesium silicate)	-	-	-	-	ISO 1043-2

Menu Total records found: 17

Search for fillers ISO 1043-2: "ISO 1043-2"

Result: All fillers ISO 1043-2

Search Criteria

Name / Synonym: ISO 1043-3

CAS No.:

EU-index:

ENECs-No.:

GADSL: duty-to-declare

GADSL: prohibited

REACH-SVHC

Group:

View:

Name	CAS No.	EU-index	ENECs No.	GADSL / SVHC	Synonym
1,2-Diphenylcarboxylic acid, 4-C6-9 branched alkyl esters, C7 rich	71888-89-6	-	276-159-1	D/SVHC	ISO 1043-3
1,2-Diphenylcarboxylic acid, 4-C7-11 branched and linear alkyl esters	86513-42-4	-	271-094-0	D/SVHC	ISO 1043-3
Adipate plasticizer ISO 1043-3, not declarable	-	-	-	-	ISO 1043-3: Plasticizer, Adipate, not declarable
Azelaate plasticizer ISO 1043-3, not declarable	-	-	-	-	ISO 1043-3: Plasticizer, Azelaate, not declarable
Di(2-ethylhexyl) sephthalate	137-99-3	-	205-308-0	-	ISO 1043-3
Butylbenzylphthalate	88-48-7	-	201-422-7	D/SVHC	ISO 1043-3
Di(2-ethylhexyl)phthalat	117-81-7	-	204-211-0	D/SVHC	ISO 1043-3
Di-n-octylphthalate	117-89-0	-	204-214-7	D	ISO 1043-3
Dibenzate plasticizer ISO 1043-3, not declarable	-	-	-	-	ISO 1043-3: Plasticizer, dibenzate, not declarable
Diethylphthalate	84-74-2	-	201-557-4	D/SVHC	ISO 1043-3
DDP	68515-89-1	-	271-091-4	-	ISO 1043-3: Di(C9-C11) branched alkyl phthalate
Fumarate plasticizer ISO 1043-3, not declarable	-	-	-	-	ISO 1043-3: Plasticizer, fumarate, not declarable
Maleate plasticizer ISO 1043-3, not declarable	-	-	-	-	ISO 1043-3: Plasticizer, maleate, not declarable
o-acetylchlorate plasticizer ISO 1043-3, not declarable	-	-	-	-	ISO 1043-3: Plasticizer, o-acetylchlorate, not declarable
Phenyl phthalate	84-62-8	-	201-546-4	-	ISO 1043-3
Phosphatate plasticizer ISO 1043-3, not declarable	-	-	-	-	ISO 1043-3: Plasticizer, phosphate, not declarable
					phthalate, not declarable
					polymeric, not declarable
					sebacate, not declarable
					trimellitate, not declarable

Menu Total records found: 20

Search for plasticizers ISO 1043-3: "ISO 1043-3"

Result: All plasticizers ISO 1043-3

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Search for flame retardants ISO 1043-4: "ISO 1043-4"
Result: All flame retardants ISO 1043-4

Name	CAS No.	EU-Index	REACH-Ann.	Synonym	IMDS / SPHC
1,2-Dibromoethane	124-73-2	-	204-711-9	ISO 1043-4	P
1-Rubansulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, potassium salt (1:1)	29420-49-3	-	240-616-3	ISO 1043-4	-
aliphatic fluorinated compounds, ISO 1043-4, not declarable	-	-	-	ISO 1043-4: Flame retardant; aliphatic fluorinated compo-	-
Antimony trioxide	1327-33-9	-	215-474-6	ISO 1043-4	-
Antimony compound, ISO 1043-4, not declarable	-	-	-	ISO 1043-4: flame retardant, Antimony compound	-
Antimony trioxide	1329-64-4	051-005-00-X	215-175-0	ISO 1043-4	D
Boron or zinc compound ISO 1043-4, not declarable	-	-	-	ISO 1043-4: flame retardant, boron or zinc compound, not	-
Bromochlorodifluoromethane	353-59-3	-	206-537-0	ISO 1043-4	P
Bromomethane	74-83-9	002-002-00-2	200-813-2	ISO 1043-4	P
Carbon	7440-44-0	-	231-153-5	ISO 1043-4	-
Decabromodiphenylether	1167-19-5	-	21-631-9	ISO 1043-4, FDEE, DEOPE	DP/SPHC
Diphenyl ether, octabromo derivative	3238-43-9	-	231-687-9	ISO 1043-4, FDEE	P
Diphenyl ether, pentabromo derivative	32531-81-9	-	251-084-2	ISO 1043-4, FDEE	P
Graphite	7782-42-5	-	231-925-2	ISO 1043-4	-

Examples for thermoplastic MDSs:

Thermoplastics consisting of basic substances:

- PA66-GF30
 - ▲ PA66 (65.00%)
 - ▲ GF-Fibre (30.00%)
 - ▲ Further Additives, not to declare (5.00%)

Thermoplastics consisting of sub-materials:

- PA66 Compound
 - PA66 (95.00%)
 - ▲ PA66 (95.00%)
 - ▲ Further Additives, not to declare (5.00%)
 - PA66 Colour Masterbatch (5.00%)
 - ▲ PA66 (18.00%)
 - ▲ Further Additives, not to declare (2.00%)
 - ▲ Pigment portion, not to declare (80.00%)

2.3 Additional information on the creation of MDSs for Thermoplastic Elastomers – Material Classification 5.2

A Thermoplastic Elastomer (TPE) compound is a homogenous mixture of a TPE material and functional additives. When creating an MDS of a TPE material (material classification 5.2), a wizard will guide you through the creation process in order to achieve a correct symbol for the TPE compound.

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MDS - MATERIAL DATA SYSTEM

Composition of the material symbol

The selected material classification permits creation of Name and Symbol field entries using dropdown selections derived from the IMDS Basic Polymer List. Therefore please select the symbols/abbreviated terms suitable for the material.

Classification Thermoplastic elastomers

Thermoplastic elastomers ISO 18064 TPS-SEBS

Composed symbol TPS-SEBS

It is also possible to adapt the symbol manually (lowermost input field).

OK

After completing the wizard, you need to select the substances (like *basic thermoplastic elastomers* and functional additives) from the basic substance list.

Basic thermoplastic elastomers are listed in the basic substance list under their ISO 18064 symbols. You can find them in the substance list by searching for “thermoplastic elastomer” in the name field.

For complex composed TPE products, the working procedure is the same as for complex composed elastomers/elastomeric compounds (see 2.4).

2.4 Additional information on the creation of MDSs for Elastomers/Elastomeric Compounds – Material Classification 5.3

Elastomers/elastomeric compounds are a homogenous mixtures of a base rubber material and functional additives. When creating a material MDS for an elastomer/elastomeric compound (material classification 5.3), a wizard will guide you through the creation process in order to achieve a correct symbol for the elastomer/elastomeric compound.

MDS - MATERIAL DATA SYSTEM

Composition of the material symbol

The selected material classification permits creation of Name and Symbol field entries using dropdown selections derived from the IMDS Basic Polymer List. Therefore please select the symbols/abbreviated terms suitable for the material.

Classification Elastomers / elastomeric compounds

Basic elastomers ISO 1629 EPDM

Composed symbol EPDM

It is also possible to adapt the symbol manually (lowermost input field).

OK

After completing the wizard, you need to select the substances (like *basic rubbers* and functional additives) from the basic substance list.



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Basic rubbers are listed under their ISO 1629 symbols. You can find them in the basic substance list by searching for “basic rubber” in the name field.

2.5 MDS creation for Complex Products of Thermoplastics, TPEs and/or Elastomers

Complex products composed of thermoplastics, thermoplastic elastomers and/or elastomers/elastomeric compounds (e.g. fuel hoses) are constructed as shown below for an example elastomer/elastomeric compound.

For complex composed elastomers/elastomeric compounds that contain different rubber or plastic materials (e.g. a fuel hose with inner layer, intermediate layer, outer layer and a fiber reinforcement between the layers), it is recommended to add each contained material beneath a semi-component describing the composite product. The top level semi-component is not a homogenous material and should be described as shown below. The different components of the product can be described as materials.

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Examples for MDSs:

Part 1: Intermediate layer ECO

- ECO (inner layer)
 - 33.0 - 36.0% Carbon black
 - Rest 52.5% ECO
 - 1.0 - 2.0% Nickel bis(dibutylthiocarbamate)
 - 2.0 - 3.0% Imidazolidine-2-thione
 - 2.0 - 3.0% Dioctyl-phosphonate
 - 5.0 - 6.0% Misc., not to declare
 - 0.5 - 1.5% Kaolin

Details

Common Information

Type Material (published MDS)

ID / Version 904883525 / 1

Node ID 904883525

Node count 8

MDS Supplier IMDS-Committee

Name ECO ?

Trade name ECO 2011 ?

Internal Mat.-No. -

Preliminary MDS No

I have declared all GADSL substances Yes

Dates

Material Information

Std. Mat.-No. -

Symbol ECO

Classification 5.3 Elastomers / elastomeric compounds

Norms / Standards

Company	Norm	Norm Code
-	ISO	1629

Supplier -

Remark

Remark - ?

Part 2: Textile fabric

- Aramid Fabric
 - Rest 99.0% 1,4-Benzenedicarbonyl dichloride, pol
 - 0.5 - 1.5% Further Additives, not to declare

Details

Common Information

Type Material (published MDS)

ID / Version 904883527 / 1

Node ID 904883527

Node count 3

MDS Supplier IMDS-Committee

Name Aramid Fabric ?

Trade name AR 44321 ?

Internal Mat.-No. -

Preliminary MDS No

I have declared all GADSL substances Yes

Dates

Material Information

Std. Mat.-No. -

Symbol AR

Classification 5.5.2 Textiles (in polymeric compounds)

Norms / Standards

Company	Norm	Norm Code
-	ISO	2076

Supplier -

Remark

Remark - ?

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ECO (outer layer)

- 28.0 - 32.0% Carbon black
- Rest 59.0% ECO
- 1.0 - 2.0% Nickel bis(dibutyldithiocarbamate)
- 2.0 - 3.0% Imidazolidine-2-thione
- 2.0 - 3.0% Dioctyl-phosphonate
- 0.5 - 1.5% Misc., not to declare
- 3.0 - 4.0% Phthalate plasticizer ISO 1043-3, not d

Part 3: Outside layer ECO

Details

Common Information

Type Material (published MDS)
 ID / Version 904883526 / 1
 Node ID 904883526
 Node count 8
 MDS Supplier IMDS-Committee
 Name ECO (outer layer) ?
 Trade name ECO 2011 ?
 Internal Mat.-No. -
 Preliminary MDS No
 I have declared all GADSL substances Yes

Dates

Material Information

Std. Mat.-No. -
 Symbol ECO
 Classification 5.3 Elastomers / elastomeric compounds

Norms / Standards

Company	Norm	Norm Code
-	ISO	1629

Supplier -

Remark

Remark - ?

Fuel Hose ECO/AR/ECO

- 40.0 - 43.0% ECO (inner layer)
- 5.0 - 6.0% Aramid Fabric
- Rest 53.0% ECO (outer layer)

Combination of the 3 materials to a composed rubber product

Details

Common Information

Type Semicomponent (published MDS)
 ID / Version 904883528 / 1
 Node ID 904883528
 Node count 20
 MDS Supplier IMDS-Committee
 Article Name Fuel Hose ECO/AR/ECO
 Item- /Mat.-No. V44333
 Preliminary MDS No

Dates

Amounts and Weights

2.6 MDS creation for glass, silicate ceramic and enamel

Under the REACH regulation glass is a UVCB substance (unknown or variable composition, complex reaction products or biological materials). It is virtually considered as a single substance and does not contain individual elements or oxides anymore. This approach will as well be used for IMDS entries of glass, silicate ceramic and enamel. Declarable constituents and additives still have to be reported separately.

All newly created entries for glass, silicate ceramic and enamel must be described by using a single (pseudo) substance for the basic material, according to the approach listed below. An additional functionality in IMDS supports the update of higher numbers of existing entries. If a change is impossible old entries still can be used.

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Annex I to the IMDS001 Recommendation**IMDS 001a****Examples:**Simple Glass:

A screenshot of the IMDS interface showing a material entry for 'Glass'. It features a dropdown arrow, a small icon of a glass pane, and the text 'Glass' in bold. Below this, there is a blue diamond icon followed by '100.0% Glass without declarable substances'.

(German: "Glas ohne deklarationspflichtige Inhaltsstoffe")

Specific glass:

A screenshot of the IMDS interface showing a material entry for 'Tinted glass'. It features a dropdown arrow, a small icon of a glass pane, and the text 'Tinted glass' in bold. Below this, there are three entries, each with a blue diamond icon: 'Rest 97.0% Glass without declarable substances', '0.0 - 3.0% Pigment portion, not to declare', and '0.0 - 3.0% Misc., not to declare'.

Glass containing declarable substances:

Should the glass contain any declarable substance, as pure substance or included in the matrix, this has to be specified in addition, according to the general rules of IMDS Recommendation 001.

Example with lead as declarable substance, included in the matrix

A screenshot of the IMDS interface showing a material entry for 'Glass containing Lead'. It features a dropdown arrow, a small icon of a glass pane, and the text 'Glass containing Lead' in bold. Below this, there are two entries, each with a blue diamond icon: 'Rest 98.0% Glass without declarable substances' and '1.0 - 3.0% Lead'.

Similar rules are to be applied for silicate ceramic and enamel materials, using the following pseudo substances:

- ▲ Ceramic without declarable substances (German: "Keramik ohne deklarationspflichtige Inhaltsstoffe")
- ▲ Enamel without declarable substances (German: "Emaille ohne deklarationspflichtige Inhaltsstoffe")

Films or coatings applied on glass must be reported as separate material.

For glass, silicate ceramic or enamel as an ingredient in a composed material just use the single (pseudo) substance.

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Annex I to the IMDS001 Recommendation**IMDS 001a****Special advices for ceramics**

Ceramics can be grouped in

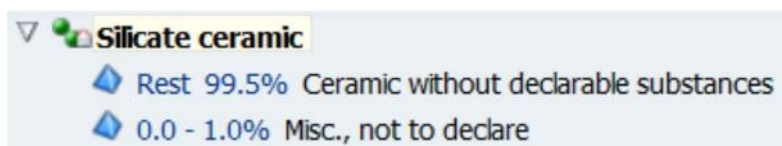
1. Silicate ceramic
2. Oxide ceramic and
3. Non-Oxide ceramic

Examples:

1. Silicate ceramic Porcelain; Refractory Ceramic Fibres
E.g. used for electronic components like LTCC
2. Oxide ceramic Aluminium oxide or Aluminium titanate; Ferrite
E.g. used for spark plugs, lambda sensors, exhaust sensors, piezo injector, parking sensors, knock sensors
3. Non-Oxide ceramic Silicon or Boron carbide; Silicon or Boron nitride
E.g. used for wear protection layers

Declaration in IMDS

1. Silicate ceramics are UVCBs (Unknown or Variable composition, Complex reaction products or Biological materials) like glass. Therefore, they have to be declared like glass, see above, using the pseudo substance "Silicate ceramic without declarable substances".



2. Oxide ceramics can consist mainly of one single oxide. In this case the declaration has to be made as for normal materials, listing the oxide and all additional ingredients explicitly or as wildcard.



Oxide ceramics can be created as well of several oxides. During sintering they form a UVCB. Therefore, they have to be declared like glass using the pseudo substance "Ceramic without declarable substances".

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▼ **Oxide ceramic**

- Rest 99.5% Ceramic without declarable substances
- 0.0 - 1.0% Misc., not to declare

3. Non-Oxide ceramics are created of the basic carbide or nitride and of different amounts of binder and/or sintering additives. During sintering they form a UVCB. Therefore they have to be declared like glass, see above, using the pseudo substance “Ceramic without declarable substances”.

▼ **Silicon-carbide ceramic**

- Rest 99.5% Ceramic without declarable substances
- 0.0 - 1.0% Misc., not to declare

Should any of the ceramics contain other declarable substances, this has to be specified in addition, according to the general rules of IMDS Recommendation 001 (see example for glass).

Laminated safety glass parts

Parts mainly consisting of Laminated safety glass always are built up of

- (Two layers of) sheet glass described according to topic 2.5 of this Annex
- The plastic interlayer consisting of the basic polymer(s), plasticizer(s) and additives
- Further materials and parts mounted to the glass

Silver printing on glazing parts

For the often used Silver printing on glazing parts, e.g. for antennas, heating, alarms, exists a Material Standard Module of the Steering Committee (IMDS ID n° 9123197).

▼ **Silver printing for glazing part**

- 90.0 - 100.0% Silver
- Rest 3.5% Glass without declarable substances
- 0.0 - 3.0% Misc., not to declare

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3 Revisions

Rev.	Date	Description / Reason	Originating Committee
1	Feb 2010	Initial version	IMDS SC
2	Jul 2010	Adding chapter 2 "Examples"	IMDS SC
3	Sep 2011	Adding chapter 2.2 – 2.5	IMDS SC
4	Nov 2011	Minor corrections	IMDS SC
5	April 2012	Harmonization of wording REC019 and REC001 Annex I (Classification 8.1)	IMDS SC
6	April 2013	Harmonization of wording in the description for classification 5.1	IMDS SC
6	September 2013	Addition of paragraph 2.6 MDS creation for glass, ceramic and enamel	IMDS SC
7	2020	<ul style="list-style-type: none"> - Chapter 1: addition about classification 6.x - Chapter 1.2 Flow chart: new chapter - Chapter 1.3 Classification table: several editorial changes and following material classification deactivated: 1.2, 5.4, 8.2 - Chapter 1.4 Special Materials: several sections added - Chapter 2: new screen dumps - Chapter 2.6: new sections added - deactivate 5.5.1 - keep 5.5.2 - Changes in 5.1.a and 5.1.b due to SC90 calls with Plastic Europe and SC90 WG - 5.5.2 and 7.1 Examples added (Will Martin) 	IMDS SC