

IMDS Operation Manual

DENSO TEN Limited

Engrg Mgt Div. Engrg Mgt Dept Standard Management Sect

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Introduction

(1) Purpose(2) Scope of application

Introduction (1) Purpose

This manual is summarized about submitting IMDS* data.

- •About basic input method of IMDS data, please refer to the IMDS User Manual and IMDS Recommendation to understand how to use the IMDS.
- •This manual intends to make IMDS data according to DENSO TEN request.

*IMDS: International Material Data System

- •Developed mainly by the German Association of the Automotive Industry (VDA)
- •The automotive industry's global standard database operated by the membership consisting of major automotive manufacturers in the world, including Japan
- •This manual intends to improve data quality in IMDS.

(2) Scope of application

•This manual applies to IMDS reported by suppliers for DENSO TEN.

(2) Scope of application

•This manual applies to the IMDS data reported by suppliers to DENSO TEN, which is operated by DENSO TEN part numbers.

The Denso version of the manual applies to those operated with the Denso part number.

Parts delivery destination	Product	Part Number	Related to IMDS Rule
	TEN	DENSO TEN	DENSO TEN Version IMDS Operation Manual
DENSO TEN	Brand	DENSO	DENSO Version IMDS creation manual for suppliers
	DENSO	DENSO TEN	DENSO TEN Version IMDS Operation Manual
Branc		DENSO	DENSO Version IMDS creation manual for suppliers

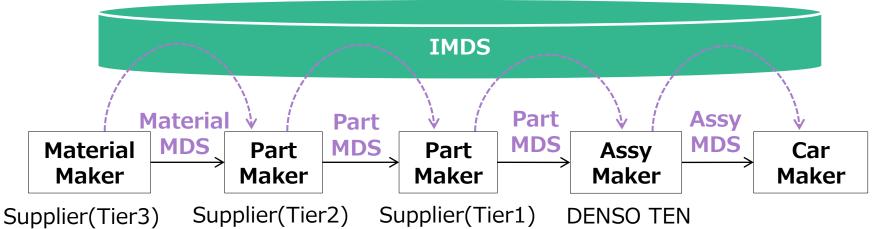


Basic stance of IMDS reporting

- (1) Investigation / Reporting
- (2) Confidential information
- (3) Reactive material included in delivery product

2. Basic stance of IMDS reporting(1) Investigation / Reporting

The supplier shall trace purchased parts/materials along the supply chain to check contained substances (components) and report the result to DENSO TEN.



IMDS (International Material Data System)

The database on the Web where the automobile industry collects MDS for compliance with environmental regulations. It is widely used as a means of MDS information transmission in the supply chain for the purpose of finally submitting MDS to automobile manufacturers.

MDS (Material Data Sheet)

The data of the materials that structure products and parts and the substances that structure the materials.

(2) Confidential information

The disclosed substances (components) shall be up to 10% per homogeneous material. However, substances subject to "TDC-002 Control Criteria for Chemical Substances Contained in Products" must not be included in disclosed substances.

(3) Reactive material included in delivery product

The reactive material shall be reported in the state as included in the final product of DENSO TEN. In particular, in cases of thermosetting resin, adhesive, paint, solder, etc., the supplier shall report substances finally included in (attached to) the product of DENSO TEN after reaction.

3. IMDS entry method (Basic)

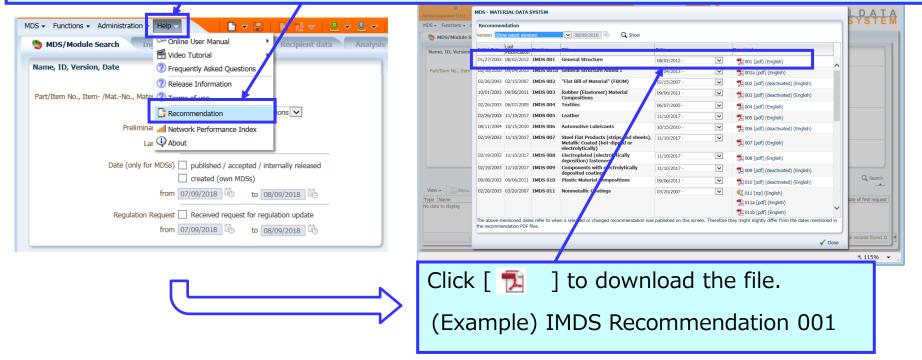
(1)IMDS Recommendation(2)IMDS User Manual

2. IMDS entry method (Basic)

(1) IMDS Recommendation

- It contains IMDS entry rules. You can view the recommendations of the IMDS Steering Committee.
- These files can be downloaded from the IMDS screen after you log in.

Log in to the system, select [Help] from the menu bar, and select [Recommendation] from the pull-down menu.

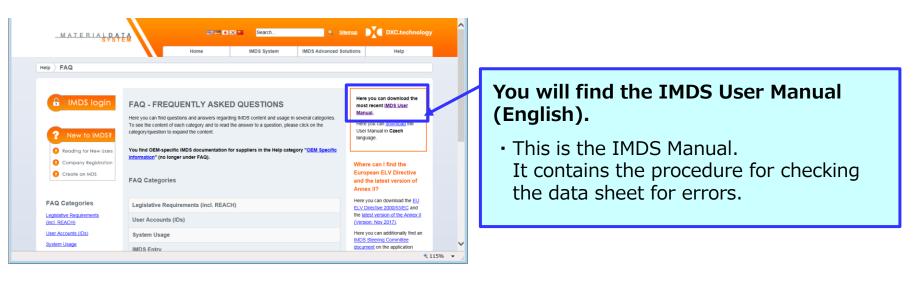


(2) IMDS User Manual

Download the IMDS User Manual from the following URL:

https://public.mdsystem.com/en/web/imds-public-pages/faq

The URL will lead you to the Frequently Asked Questions (FAQ) page.





IMDS entry method

(DENSO TEN-specific requests)

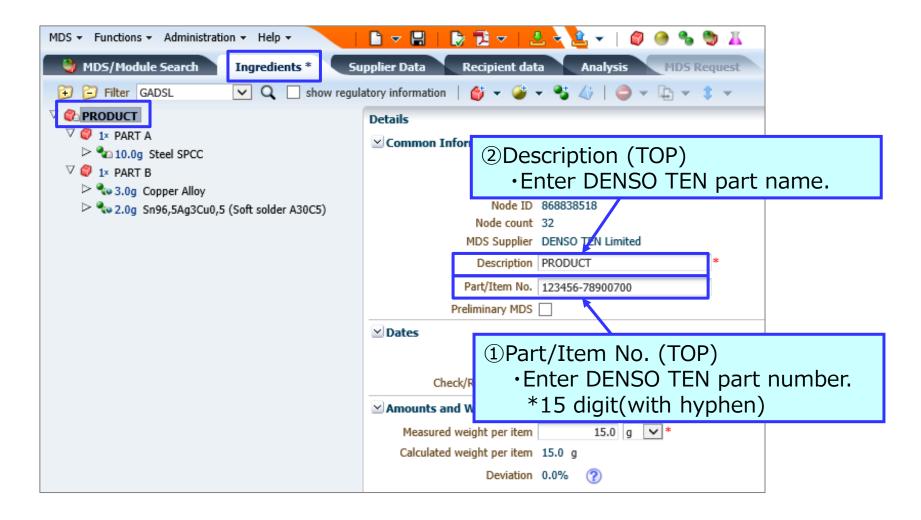
- (1) Basic item
- (2) Material
- (3) Trade name
- (4) Submission of data in the mass-production preparation stage
- (5) Application codes
- (6) Filler Symbol
- (7) Recyclate
- (8) Target part number of submission
- (9) Supplied part from DENSO TEN
- (10) Method of submission(Raw material)

4. DENSO TEN-specific requests

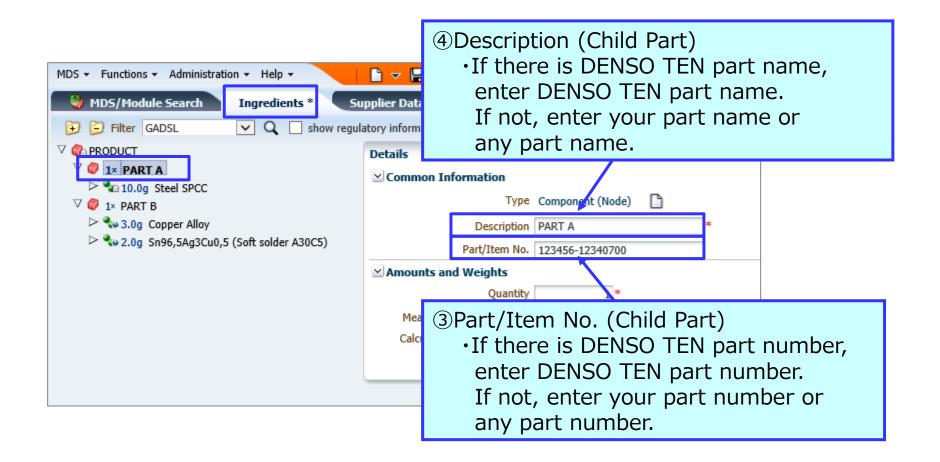
(1) Basic item

IMDS Screen	Item	Entry method
Ingredients	①Part/Item No. (TOP)	•Enter DENSO TEN part number. *15 digit(with hyphen)
	②Description (TOP)	•Enter DENSO TEN part name.
	③Part/Item No. (Child Part)	•If there is DENSO TEN part number, enter DENSO TEN part number. If not, enter your part number or any part number.
	④Description(Child Part)	•If there is DENSO TEN part name, enter DENSO TEN part name. If not, enter your part name or any part name.
Recipient	⑤Name	•Enter DENSO TEN part name.
data	6 Part/Item No.	•Enter DENSO TEN part number. *15 digit(with hyphen)
⑦Company ID/Org.ID		•300 (when the report is to the DENSO TEN Headquarters). Other country : Please refer to List of Company ID(Org. ID)
	Supplier Code	•Blank.
		•Put a check (forwardable).
Common	ID/Version	 When resending corrected data or making another report of the same part number, prepare new version data using the same ID. The version can be numbered using a decimal number or an integer.

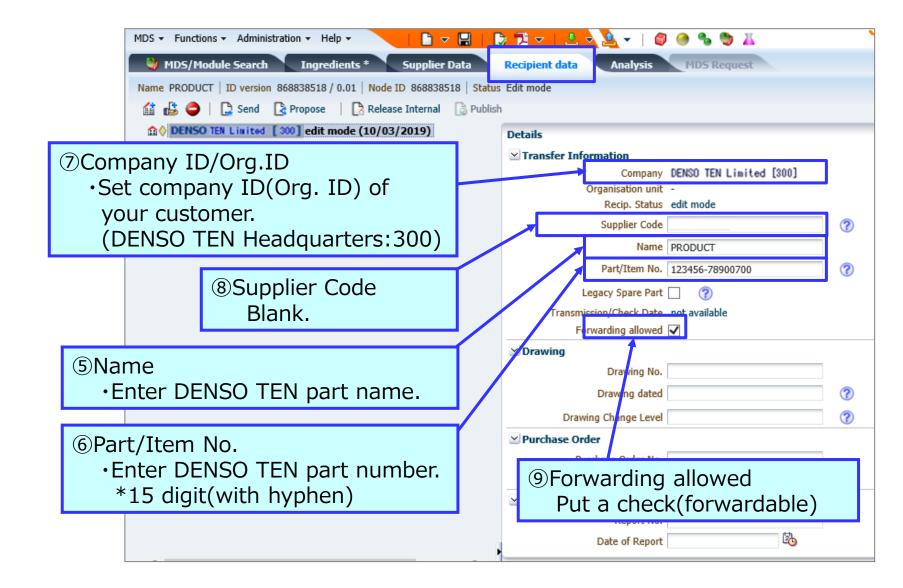
<Ingredients>



<Ingredients>



<Recipient data>



<Common>

MDS - Functions - Administration - Help -		
MDS/Module Search Ingredients * Supplier Data Name PRODUCT ID version 868838518 / 0.01 Node ID 000022518 St Send Propose Release Internal Pu CONTENSO TEN Limited [300] edit mode (10/03/2019)	another report of the prepare new version	e same part number, data using the same ID. umbered using a decimal
MDS Functions Administration Help Component Search Ingredients Supplier Data Name, ID, Version, Date Description Part/Item No. ID 868838518 Current versions	<how create="" new="" of="" to="" v<br="">Display the target data search, select it, and t → "Copy" → "New Ver New version data shee be edited.</how>	a in the component then select "Menu" rsion".
View View Menu View View View View View View View View	Part/Item No. 123456-78900700	

<List of Company ID(Org. ID)>

•Please send IMDS data to company ID(Org. ID) of your customer.

Company name	Abbreviation	Company ID	Org. ID
DENSO TEN Limited	TNJP	300	_
DENSO TEN AMERICA Limited	TNAM	_	58351
DENSO TEN ESPAÑA, S.A.	TNES	_	100225
DENSO TEN (THAILAND) Limited	TNTH	-	133074
電装天国際貿易(天津)有限公司 (DENSO TEN TRADING (TIANJIN) Limited)	TNTT	_	71506
電装天電子(無錫)有限公司 (DENSO TEN ELECTRONICS (WUXI) Limited)	TNWX	_	59556
DENSO TEN PHILIPPINES CORPORATION	TNPH	_	209754
DENSO TEN MINDA INDIA Private Limited	TNMI	_	209755

(2) Material

•When there are IMDS committee materials in a public standard in IMDS, it is necessary to use IMDS committee materials on the rule.

•Please use IMDS committee materials without inputting a hand when there are IMDS committee materials. (IMDS Recommendation 4.4.1.1)

%About IMDS committee Material

- <IMDS rule 4.4.1.1 Material MDSs Published by the IMDS Steering Committee > •IMDS committee materials mean standard materials (materials data sheet shown by IMDS steering committee) in IMDS.
- •In IMDS, the public standard materials such as EU (EN, DIN standard), Japanese (JIS), American(ASTM, UNS), ISO are registered as IMDS committee materials, and, as for the IMDS committee materials, an error check of IMDS is exempted.

<Input method of IMDS committee materials>

①Confirmation of the information of materials

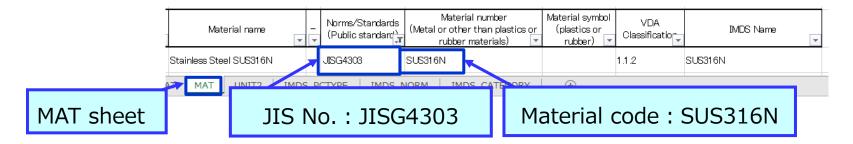
You will confirm a JIS number, materials code from the information such as specifications, a drawing, the JIS.

<example>We show it in the example of the stainless steel. JIS No. : JISG4303 Material Code : SUS316N

You can confirm JIS number, the materials Code on homepages of the JIS.

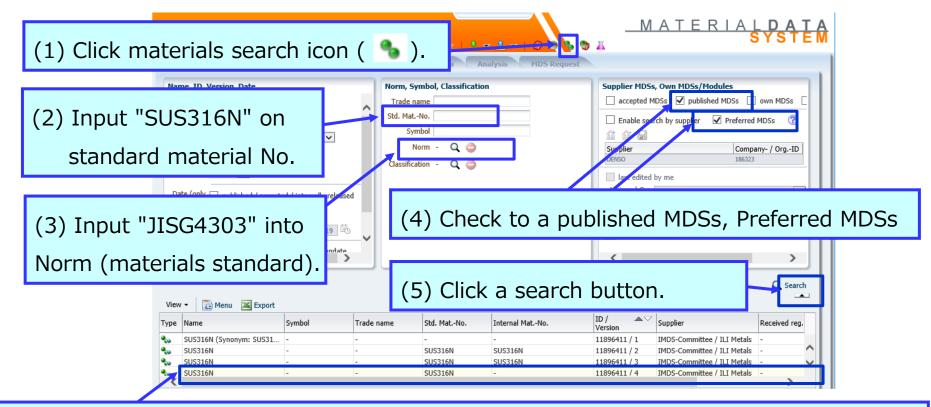
Homepage of the JIS : Japanese Industrial Standards : <u>http://www.jisc.go.jp/</u>

In addition, JAMA/JAPIA Standard Material Datasheet external file : Abstract of the "MAT" sheet as reference.



②Confirmation of the registration situation of IMDS

- •To materials search screen of IMDS, it is a Japanese Industrial Standards number : JISG4303, materials code: SUS316N.
- •In IMDS, IMDS set module ID and a version to materials and manage. The data of the new version may be registered by the update of the public standard, an error in writing correction.



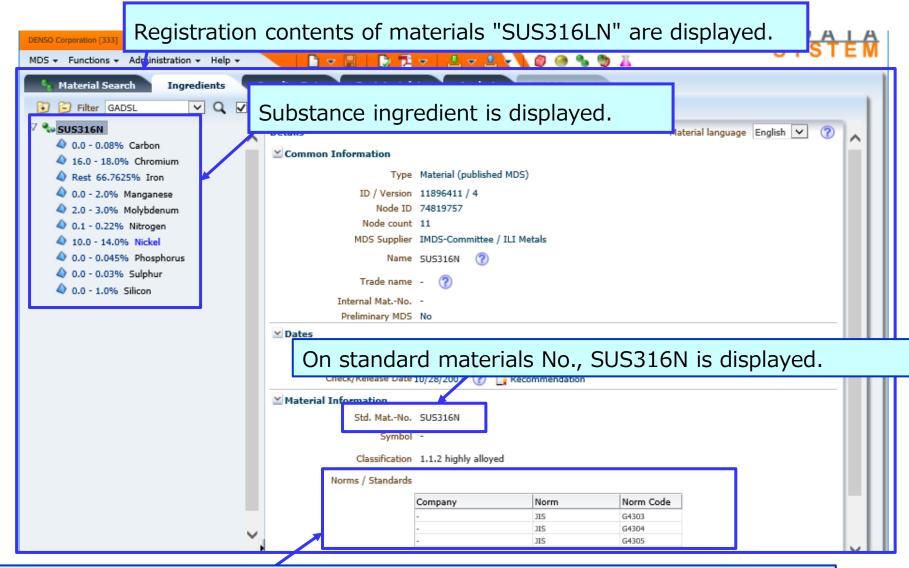
(6)Applicable IMDS committee materials are displayed.

 $(\rightarrow$ next page that detailed information is displayed when you click it)

•About same SUS316N, the IMDS committee materials which are different in version are registered.

 \cdot For Denso TEN, please report it using the most recent version (this case, 11896411/4).

③Confirmation of registration contents of IMDS

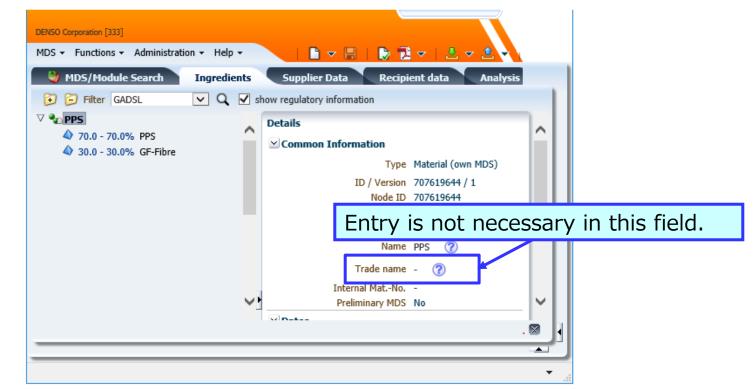


In a public materials standard column, it is a JIS number : JISG4303 is displayed. %There is three JIS No., but the IMDS committee materials are registered only with one.

(3) Trade name

•This field should be left blank at the time of the report to DENSO TEN. The provided data cannot be revised at DENSO TEN.

Confidential portions of your products and materials should be handled accordingly by each supplier before submission.



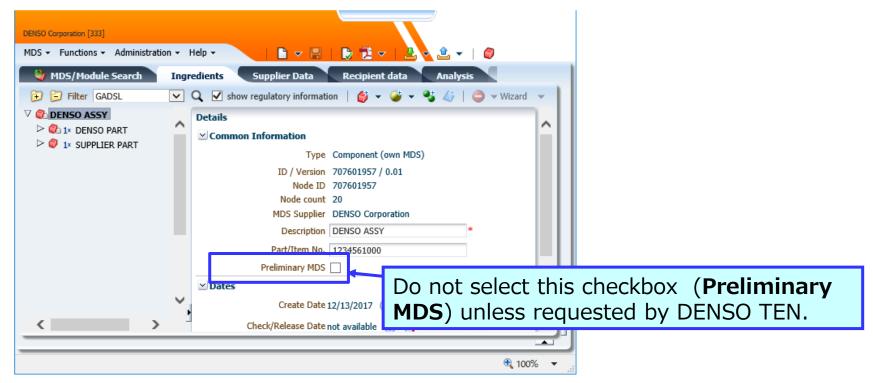
* Please consult us when corrections cannot be made because the material was prepared by the material manufacturer or for other reasons.

(4) Submission of data in the mass-production preparation stage

You are requested to submit the data of mass-produced parts to DENSO TEN.
Submission of the "Preliminary MDS" in the mass-production preparation stage shall be avoided unless requested by DENSO TEN.

<Attention>

It may sometimes include this check in the MDS data which you obtained from your overseas second supplier. We may receive reject from our customer when your MDS include such data. In that case, even if the contents of MDS data are the same as the MDS of product, you need re-investigation.



(5) Application codes

<Entry rules>

- Enter the application code appropriate to the use of each product.
 - * If entering lead as impurity of 0.1% or less, report this with the application code 44. Entering a code other than 44 to 47 means intentional use of the substance; therefore, you should not enter "0" as the minimum value. If our customer makes a request on the above, we may ask you a revision.

When reporting to DENSO TEN, <u>do not use the application codes (IDs)</u> <u>shown in the list of next page.</u>

* If your product is affected by exemption change (subdivision of application code) or invalidation of application codes (13, 16, 58, etc.), we may request update of already reported data.

Important

<Unusable application codes (IDs)>

CompoundApplication ode (10)Definition of application code: APPLICATIONEU ELV Directive Directive1Alloying element in steel for machining purposes or galvanised steel1(a) (1b)2Alloying element in aluminium for machining purposes2(a),(b),(c)(i) 2(c)(ii)13Solder in electronic circuit boards and other electric applications Mow use prohibited in IMDS(Old 8)16Solder in electronic circuit boards and other electric applications matrix compound except glass in bulbs and glaze of spark plugs * New use prohibited in IMDS(Old) 1016Lead in compliant pin connector systems * New use prohibited in IMDS(Old) 8(r)20Other application (potentially prohibited)-13(a)Corrosion preventive coatings13(a)14Corrosion preventive coatings related to bolt and nut assemblies for chassis applications13(b)210Other application (potentially prohibited)-220Other application (potentially prohibited)-421Absorption refrigerators in motorcaravans14230Other application (potentially prohibited)-421Absorption refrigerators in motorcaravans13(b)13(b)Absorption network is applications-425Dick for generative coatings related to bolt and nut assemblies for chassis applications-426Other application (potentially prohibited)-427Other application (potentially prohibited)-428Dick arge lamps and instrument panel displays15(a), 15(a), 15(b) </th <th></th> <th></th> <th></th> <th></th>					
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Mercury and its compound25Discharge lamps and instrument panel displays15(a), 15(b)20Other application (potentially prohibited)-Nickel32Component of a surface likely to be routinely touched (eg. handles and buckles), that have a nickel release rate exceeding-PAHs40Not applicable-		50		-	
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Nickel32Component of a surface likely to be routinely touched (eg. handles and buckles), that have a nickel release rate exceeding 0.5μg/cm2/weekPAHs40Not applicable-	Mercury and	25	Discharge lamps and instrument panel displays	15(a), 15(b)	
Nickel 32 and buckles), that have a nickel release rate exceeding - 0.5μg/cm2/week. - - PAHs 40 Not applicable -	its compound	20	Other application (potentially prohibited)	-	
PAHs 40 Not applicable -	Nickel	32	and buckles), that have a nickel release rate exceeding	-	
	PAHs	40	Not applicable		

<Application codes (IDs) that can be used depending on the purpose>

Compound	Application code (ID)	Definition of application code: APPLICATION	EU ELV Directive
Lead and its	53	Lead in solder used in electronic circuit board applications	8(a)
compound		Lead in solders in electrical applications other than soldering on electronic circuit boards or on glass	8(b)

•The above is an application code that can be used for a limited time, so please be sure to check for any mistakes before submitting. We may contact you.

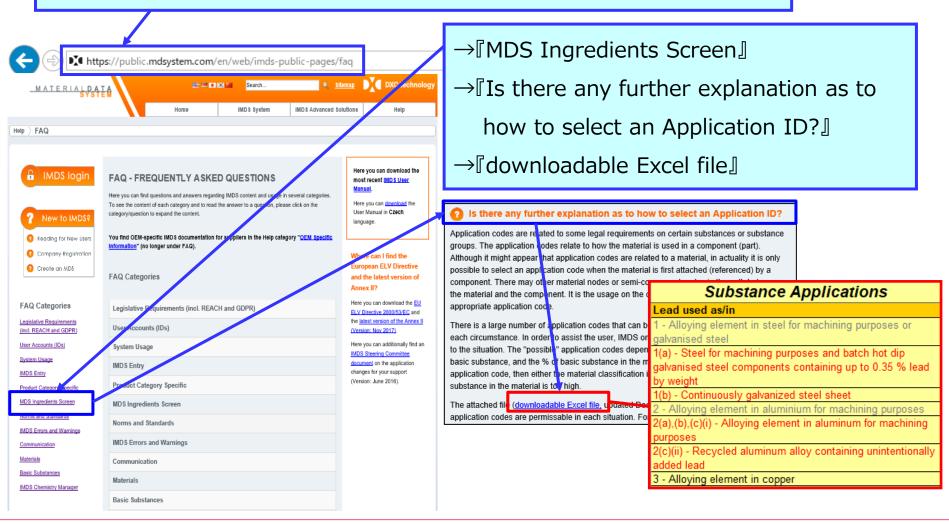
•We may make inquiries other than the above.

<How to confirm the latest application codes>

Important



https://public.mdsystem.com/en/web/imds-public-pages/faq

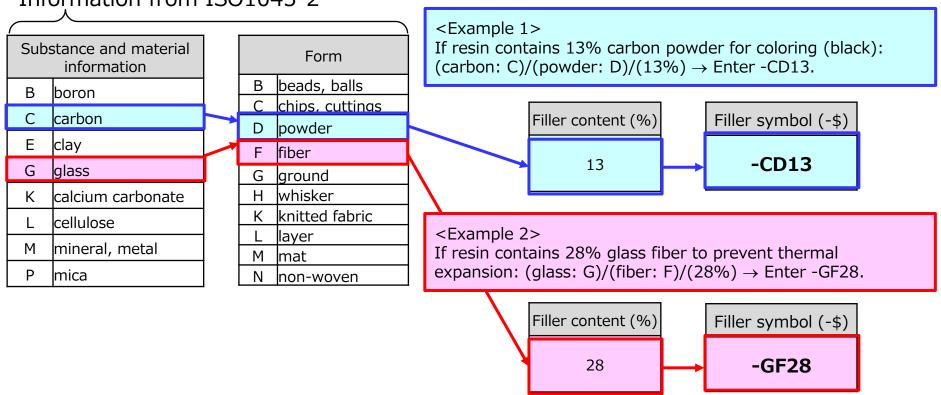


(6) Filler Symbol

According to the substance information on a filler, you create the symbol for the filler and incorporate it into the material data.

- If two types of fillers are contained, place the filler with higher component ratio first and then the other after "+", e.g. -(GF20+TD10).
- Numbers of filler content should be integers. Round off the decimal point.

(Example : 11.8→12,10.3→10)



Information from ISO1043-2

(7) Recyclate

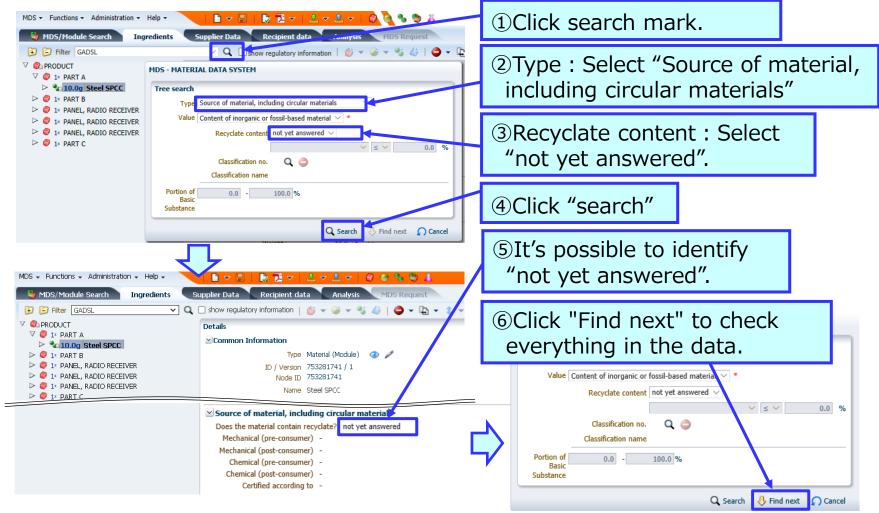
•Be sure to enter whether to use recycled materials.

If using recycled materials, please enter all the required items.

	Source of material, including circular materials		1	
	Content of inorganic or fossil-based material			
NG	100.0 - 100.0 % 🕜			
	Does the material contain recyclate?			
	Source of material, including circular materials		1	
	Content of inorganic or fossil-based material			
OK	100.0 - 100.0 % 🕜			
	Does the material contain recyclate?			
	No V	whether the anter whether the was		
	Be sure to enter whether to use			
	Source of material, including circular mate TCCY	cled materials.		
	Content of inorganic or fossil-based material			
	100.0 - 100.0 % 🕜			
OK	Does the material contain recyclate?			
	Content of primary inorganic or fossil-ba	ased material		
	90.0 * - 100.0 * %			
	Content of recyclate			
	0.0 * - 10.0 * %	If using recycled materials,	please	
		enter all the required items		
		· · · · ·		

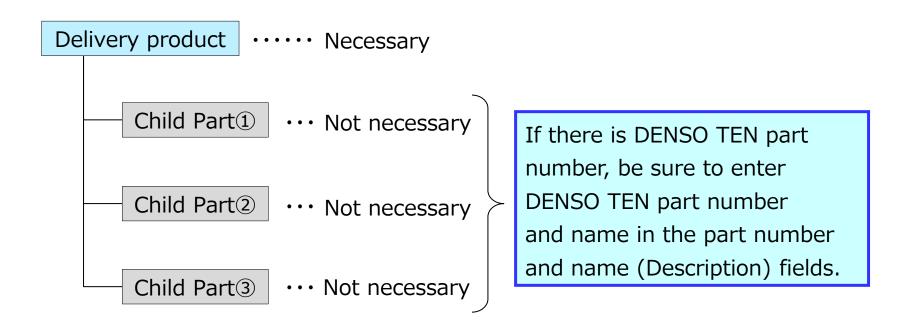
<How to check answer of the recyclate information>

•You can check answer of the recyclate information using the IMDS search function. Be sure to check if there are "not yet answered" and enter either "Yes" or "No".

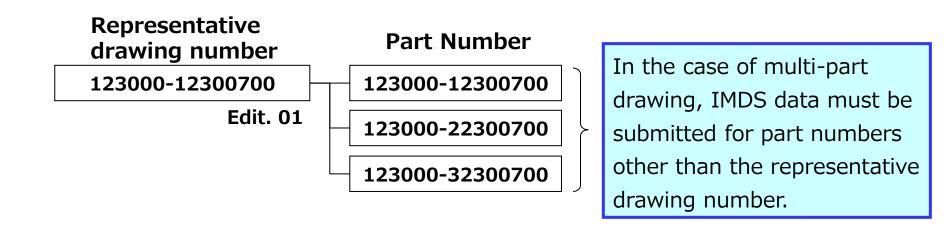


(8) Target part number of submission

 Please submit IMDS data in the unit of the delivery part number to us. Submission of child parts is not required. However, if there is DENSO TEN part number, be sure to enter DENSO TEN part number and name in the part number and name (Description) fields.



•In the case of multi-part drawing, IMDS data must be submitted for part numbers other than the representative drawing number.



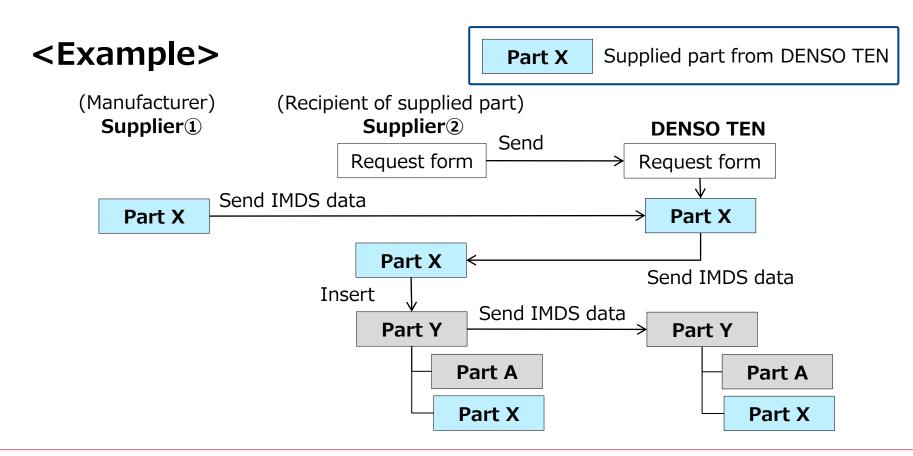
※Example of part number on drawing

Part n	多品図対象品番リスト umber list for multi-part drawing	
1	123000-12300700	Representative drawing number
2	123000-22300700	
3	123000-32300700	

(9) Supplied part from DENSO TEN

•In the case that supplied part from DENSO TEN is contained in your product, please send us the request using "Request form of data provision for supplied part". We provide the data of supplied part. Please request as soon as possible as it may take time.

•Please send IMDS data which is contained the data of supplied part.



<Request destination>

[Japan]

DENSO TEN Limited Engrg Mgt Div. Engrg Mgt Dept Standard Management Sect e-mail : ten-jama_soc@mlst.denso-ten.com

[Other country]

Person in charge of DENSO TEN overseas bases

<E-Mail subject>

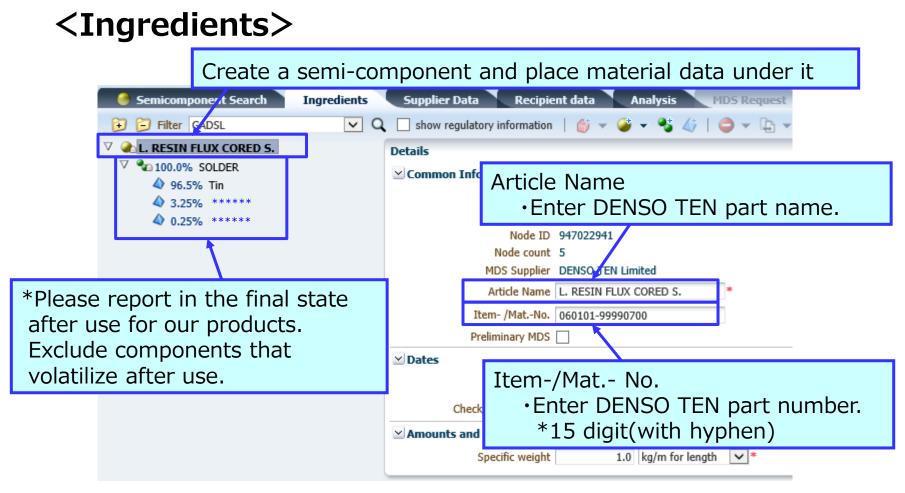
[Request] Data provision for supplied part

<Request form of data provision for supplied part>

Request form of data provision for supplied part					
Requester (Company name)					
Supplier code	Required IMDS data format	Company ID /Org. ID of recipient			
Product part number (TEN part number)	Product part name (TEN part name)	Supplied part number (TEN part number)	Supplied part name (TEN part name)		

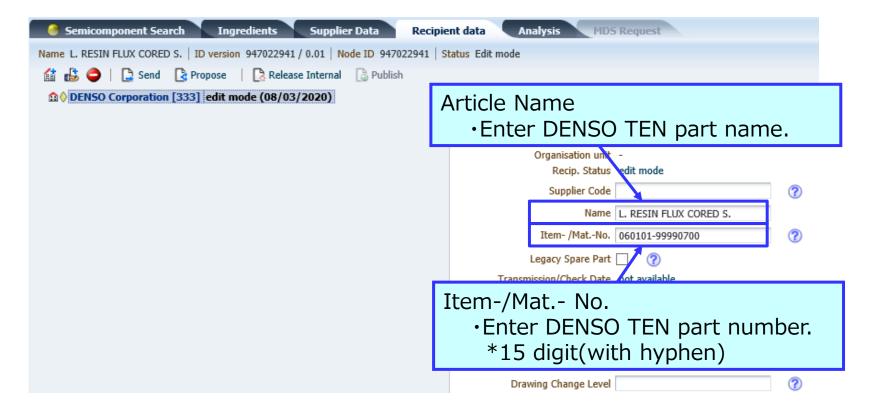
(10)Method of submission(Raw material *1)

•Please submit raw material data using semi-component.



*1 A material that is used in products and remains at normal temperature and in a dry state. (Solder, flux, lubricating oil, solvent, etc.)

<Recipient data>





Warnings in IMDS

(1) Error and warning check(2) About data correction

5. Warnings in IMDS(1) Error and warning check

•When a warning is displayed in the error check of the IMDS, the report should be made after checking the details of the warning.

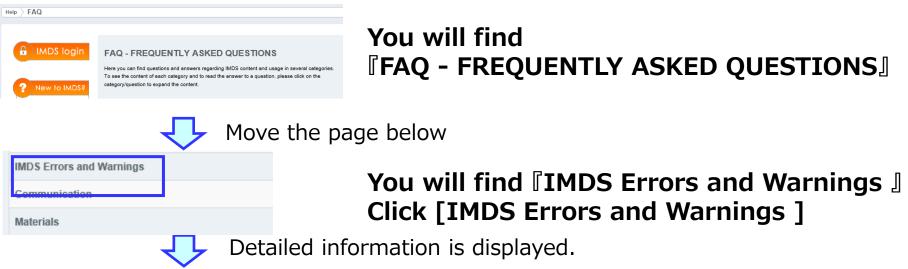
<Error and warning check functions of IMDS>

DENSO Corporation [333]		Execute check	MAT	ERIAL	
MDS - Functions - Administrati	ion + Help + 🛛 📔 🗋) 🔻 🖫 🔪 💽 🔁 👻 🛛 🛃	s 🗸 😩 🗸 🍘	🧶 🐁 🏷 🐰	I O I E III
🍓 MDS/Module Search	Ingredients Supplie	er Data Rec sient data	Analysis	MDS Request	
🔁 🔁 Filter 🛛 GADSL	Q Show regulator			l ⊉ - \$ -	
✓ ℃ Copy_EP ▲ ↓ 100.0% EP	D	Execute C	песк		
V 100.0% EP	1	Common Information			
		Туре	Basic Substance		
		Name(s)	EP		
			Basic Polymer: EP		
	1		Epoxide		×
Check results - 1 Error(s) / 3 V	Varning(s)				
	Node / Recipient △▽				
1 Ingredients	🍤 Сору_ЕР	A polymer material (classificati			
2 A Ingredients	Varnings	A material of classification 5.4. Named *poly* w/o polymers".	3 must contain at leas	st 15% substances of tr	ie group "Chk:
		The material contains at least			
3 🛕 👍 Ingredients	🔩 Сору_ЕР	inappropriate classification 5.4 5.5.1, 5.5.2, 6.1, 6.2, 6.3, 7.3,		ications are: 5.1.a, 5.1.	D, 5.2, 5.4.1,
4 😳 🗸 Supplier Da		Contact must be specified			*
	Errors				`

<How to read warning details>

Please refer to these documents for how to run the IMDS error check and how to check the errors and warnings.

https://public.mdsystem.com/en/web/imds-public-pages/faq



G IMDS Errors and Warnings

What do the warnings and errors in IMDS mean and how can I fix them?

Why am I getting ERROR messages: only valid Applications can be used for Basic Substances?

Why am I getting the 10% warning of undeclared substances?

Why am I getting more errors and warnings on previously released (legacy) data?

Detailed information is displayed. Please refer to these documents

- What do the warnings and errors in IMDS mean and how can I fix them?
- Why am I getting ERROR messages: only valid Applications can be used for Basic Substances?

(2) About data correction

•Unlike the JAMA Sheet, when reported using the IMDS, DENSO TEN cannot revise the received data.

•For errors, please correct all of them.

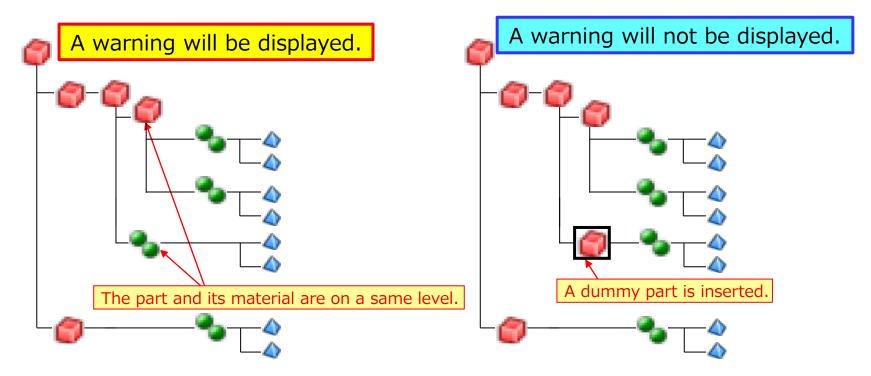
•For warnings, please confirm and correct them according to the contents after the next page.

It is not necessary to correct all warnings for us, you may be requested to make corrections in response to an individual request of the customer or for other reasons. (Even if after our approval process)

①Case in which a part and its materials are on the same level

• You are requested to submit the report after resolving this type of warning.

- <IMDS rule : IMDS User Manual 3.3.14 Error Check>
 - •When a parent part has a child part and its materials on a same level under it, the IMDS displays a warning.
- <How to resolve the warning>
 - •In that case, the warning can be resolved by inserting a dummy part (*).
 - *There are no rules for dummy part names. However, use of the material name is recommended.



②Case in which the part mass deviation exceeds the reference value of the IMDS

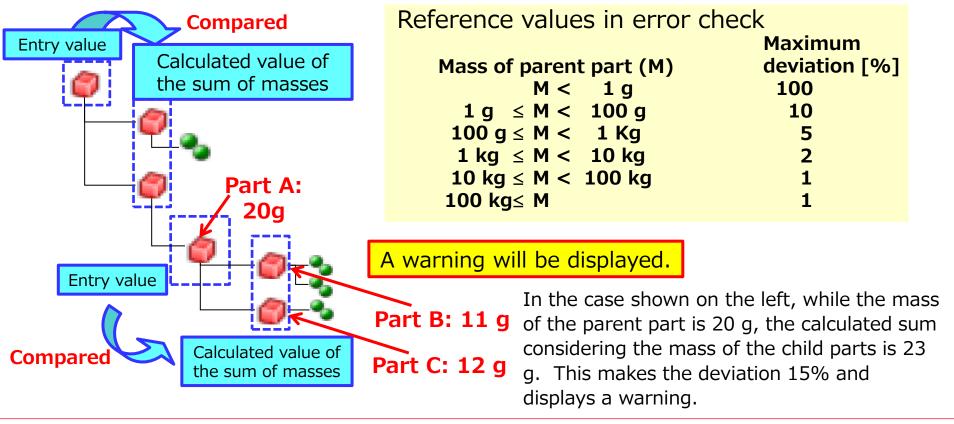
•You are requested to submit the report after resolving this type of warning.

<IMDS rule : IMDS User Manual 3.3.14 Error Check>

•When the sum of the masses of the child parts exceeds the reference values given below relative to the mass of their parent part, a warning is displayed.

*The error check will be run on all levels.

•Please correct the entry value to match total mass of child parts even within the allowable range. (Because when reporting product data to the customer, mass value may not be within tolerance.)



③Case in which the substance portion range exceeds the reference value of the IMDS

• You are requested to submit the report after resolving this type of warning.

<IMDS rule : IMDS recommendation 001 4.5.4 maximum portion ranges /IMDS User Manual 3.3.14 Error Check> •With some materials, the substance portion is specified as a range range. On the IMDS, they can be entered using the "Substance portion (Minimum)," "Substance portion (Maximum)," and "Substance portion (Rest)" fields.

Tolerance of substance maximum portion range

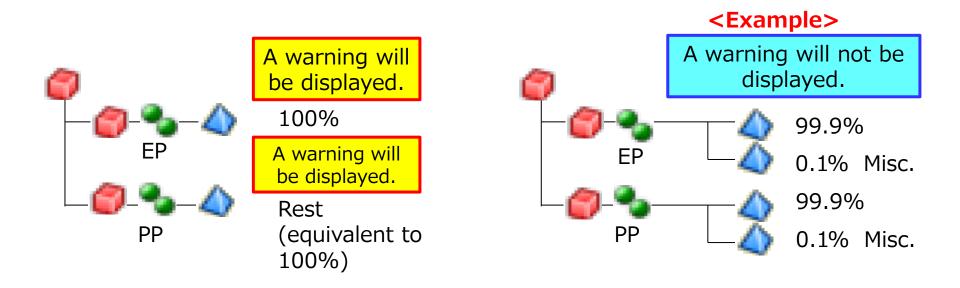
- •The substance portion range (from the minimum value to the maximum value) is defined as follows. In the report, the substance portion needs to fall within this range range.
- *Some materials specified by JIS or other public standards are allowed to exceed the tolerance range.

Substance portion	maximum portion range
Maximum = Y%, minimum = X%	M = Y% - X%
$0 \le X \le 7.5$	$M \leq 3$
7.5 < X ≤ 20	M ≤ 5
20 < X ≤ 100	M ≤ 10

④Case in which the entire plastic or rubber consists of one substance

• You are requested to submit the report after resolving this type of warning.

<IMDS rule : IIMDS User Manual 3.3.14 Error Check> •For materials of a VDA classification of 5.x or 6.x in which one substance accounts for 100%, a warning is displayed. (To prevent failure to enter additives to plastics and rubbers.)



5Chromate and passive state water

• This type of waning is basically not rejected due to the presence of water.

<IMDS rule : IIMDS User Manual 3.3.14 Error Check>

•Even if warning is displayed if the state that water included in chromate is in a right state, please just report it.

<Reference>

•As the IMDS committee materials, data containing water is registered. Data containing chromate and passive state water. In this way, there are the right data containing the water.

I M D S -committee Material IMDS ID (material): 73281512/2

MDS/Module Search Ingredients	Supplier Data Recipient data Analysis MDS Request	
🕞 🔁 Filter GADSL 🔽 🔍 📿	Indicating that this is an IMDS-Committee	ē
JAMAHCRF-TR-ZNPL B A Rest 10.5% Chromium(III)oxide	published material.	
 4.5 - 6.5% Chromium(III)-hydroxide 9.0 - 11.0% Water 50.0 - 56,2% Dichromium tris(hydrogen particular) 	Common Information Type Material (published MDS) ID / Version 73281512 / 3	
 30.0 500 % Dich official dis(n) diegen 18.0 22.0% Zinc-hydroxide 0.0 - 2.0% Misc., not to declare 	Node ID 768189201 Node count 7	
dicating that this material cont	MDS SupplierIMDS-Committee / ILI Metalstains water.NameJAMAHCRF-TR-ZNPL B	

6VDA classification

<IMDS rule : IIMDS User Manual 3.3.14 Error Check>

- •When warning is displayed by an error check of the IMDS, you confirm a candidate displayed by a message column, and please confirm an appropriate materials classification.
- •Even if warning is displayed, there is (when an appropriate choice is not displayed) when materials classification is right.

How to check candidates

DENS	iO Corpor	ation [333]	Cl	heck error button
MDS	S∓ Fu	nctions 👻 Adminis	tration 👻 Help 👻	
	🔰 MDS	/Module Search	Ingredients	Supplier Data Analysis MDS Request
E) 🔁 I	Filter GADSL	🔽 🔍 🗹 show	regulat ry information \mid 🍏 👻 🥣 👻 🎸 🛛 🥥 👻 🕞 👻 🎲 🗸
. ∆ .		/_EP 🛕		Decans Material language English 🗸 🕜
	4 10	00.0% EP		Common Information
				Type Material (own MDS)
				ID / Version 803184151 / 0.01
				Node ID 803184151
_	_			Node count 2
Che	ck res	ults - 1 Error(s) /	3 Warning(s)	
No.	Type	Tab	Node / Recipient	∆⊽ Message
1	Δ	Ingredients	🌯 Copy_EP	A polymer material (classification 5.4.3) should have at least two substances attached
2	Δ	Ingredients	🌯 Сору_ЕР	A material of classification 5.4.3 must contain at least 15% substances of the group "Chk: Named *poly* w/o polymers".
3		Ingredients	🌯 Сору_ЕР	inappropriate classification 5.4.3. Appropriate classifications are: 5.1.a, 5.1.b, 5.2, 5.4.1, 5.5.1, 5.5.2, 6.1, 6.2, 6.3, 7.3, 8.1, 8.2, 9.2
4	-	Supplic Data	-	Contact must be specified
Candidates are given. In this case, the material categories are 5.1.a, 5.1.b, 5.2, S.4.1, 5.5.1, 5.5.2, 6.1, 6.2, 6.3, 7.3, 8.1, 8.2, and 9.2.				



Points on Creating MDS

- ※ Please use to improve data quality.
- (1) To report GADSL substances
- (2) To report substances found in final product
- (3) To reflect the latest engineering and material changes
- (4) To pass material data along supply chain
- (5) To report by homogeneous material basis
- (6) To report Polymeric Parts Marking
- (7) To report component real weight
- (8) How to Enter Components of Glass
- (9) To enter material name in the name field of material data

6. Points on Creating MDS

(1) To report GADSL substances

<Rule> If portion of GADSL substance exceeds threshold, describing this is required. Allowed usage of wildcard substances : Up to 10 wt% in total

IMDS Recommendation 001 Rules 3.2.1.D and 4.5.2.C

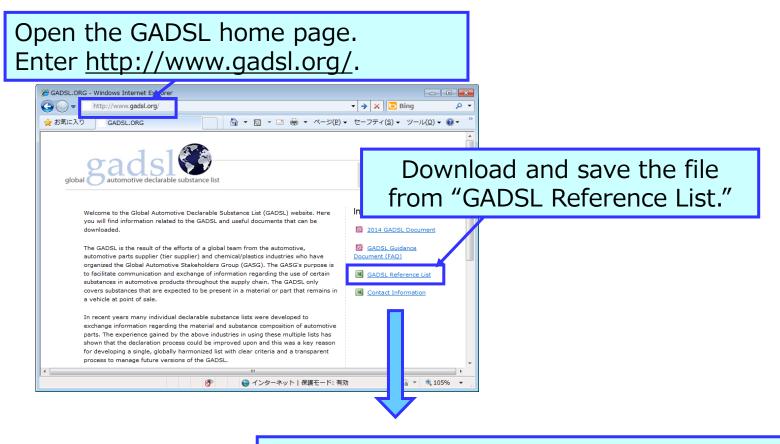
- <Points requiring special attentions>
- 1 When creating data (new or update)
 - (a) GADSL substances
 - Be sure to report us if their portion exceeds the specified threshold.
 - You must not conceal them with wildcards (highly confidential substance (Misc., not to declare, etc.)).
 - (b) Wildcard (nondisclosure)
 - When using a wildcard(s), ensure that 10% is not exceeded.

*For IMDS, the sum of confidential substances including wildcards for highly confidential substances must not exceed 10% of a material.

*When using a wildcard for the rest, note that the sum of undeclared substances must not exceed 10% of a material.

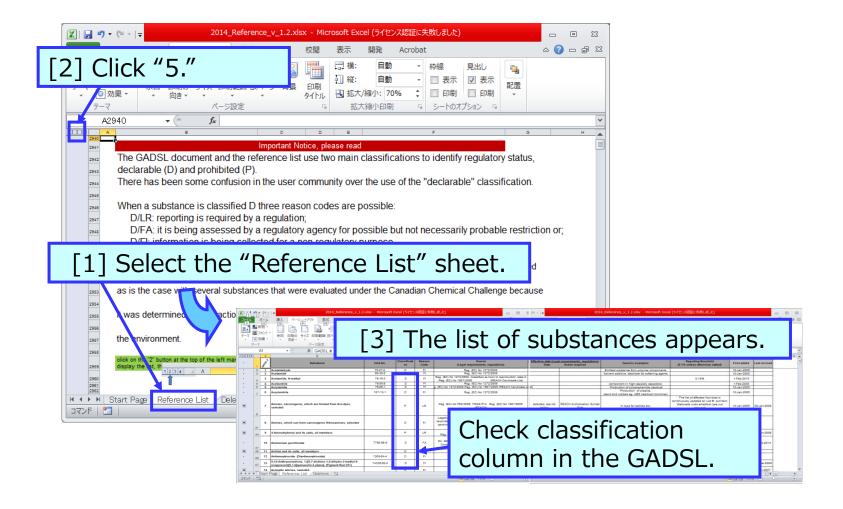
- ② When data update is necessary GADSL revision
 - If a substance reported with a wildcard is added to the GADSL, this must be promptly reported to DENSO TEN.

<How to Confirm the Latest GADSL Classification>



Open the saved "20XX_Reference_v_X.xlsx."

Open "Reference List" in Excel to check the classification column in GADSL.



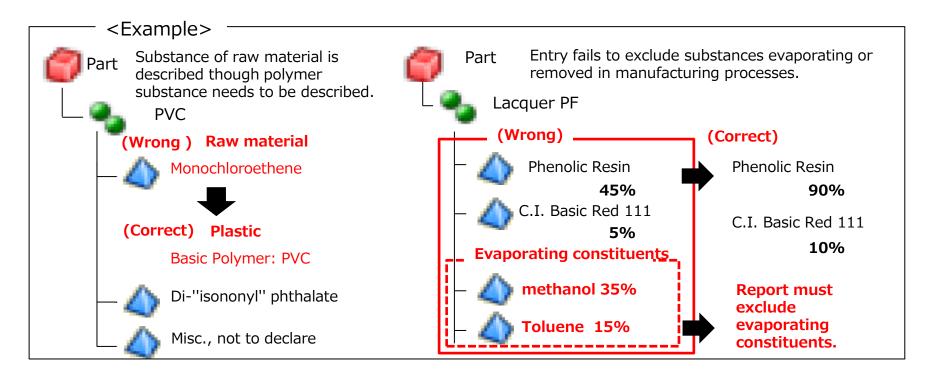
(2) To report substances found in final product

<Rule> Enter substances contained in the final product.

IMDS Recommendation 001 Rules 4.4.1.B and 4.4.1.C

<Points requiring special attentions>

- ① For plastics, report each plastic name instead of raw material.
- ② For coatings and adhesives, exclude substances (process chemicals) evaporating or removed in manufacturing processes, and report cured coatings and adhesives.



Important

Reference : Examples of Options (Pseudo Substances) for Resins

- Resins must be reported in their final state, not in the state of raw materials.
- For resins, the options below (pseudo substances) are available. You can use them when contacting material suppliers.

Material name	Material symbol (JISK6899-1)	Option in IMDS (Substance name)	Material name	Material symbol (JISK6899-1)	Option in IMDS (Substance name)
acrylonitrile-butadiene-acrylate plastic	ABAK	Basic Polymer: ABAK	methyl methacrylate-butadiene-styrene plastic	MBS	Basic Polymer: MBS
acrylonitrile-butadiene-styrene plastic	ABS	Basic polymer: ABS	methyl cellulose	MC	Basic Polymer: MC
acrylonitrile-chlorinated polyethylene-styrene	ACS	Basic Polymer: ACS	melamine-formaldehyde resin	MF	Basic Polymer: MF
acrylonitrile-(ethylene-propylene-diene)-styrene plastic	AEPDS	Basic Polymer: AEPDS	melamine-phenol resin	MP	Basic Polymer: MP
acrylonitrile-methyl methacrylate plastic	AMMA	Basic Polymer: AMMA	a-methylstyrene-acrylonitrile plastic	MSAN	Basic Polymer: MSAN
acrylonitrile-styrene-acrylate plastic	ASA	Basic Polymer: ASA	polyamide	PA	Basic Polymer: PA
cellulose acetate	CA	Basic Polymer: CA	polyaryletherketone	PAEK	Basic Polymer: PAEK
cellulose acetate butyrate	CAB	Basic Polymer: CAB	polyamidimide	PAI	Basic Polymer: PAI
cellulose acetate propionate	CAP	Basic polymer: CAP	polyacrylate	PAK	Basic Polymer: PAK
cellulose formaldehyde	CEF	Basic Polymer: CEF	polyacrylonitrile	PAN	Basic Polymer: PAN
cresol-formaldehyde resin	CF	Basic Polymer: CF	polyarylate	PAR	Basic Polymer: PAR
carboxymethyl cellulose	CMC	Basic Polymer: CMC	polyarylamide	PARA	Basic Polymer: PARA
cellulose nitrate	CN	Basic Polymer: CN	polybutene	PB	Basic Polymer: PB
cycloolefin copolymer	COC	Basic polymer: COC	poly(butyl acrylate)	PBAK	Basic Polymer: PBAK
cellulose propionate	CP	Basic polymer: CP	1,2-polybutadiene	PBD	Basic Polymer: PBD
cellulose triacetate	CTA	Basic Polymer: CTA	poly(butylene terephthalate)	PBT	Basic Polymer: PBT
ethylene-acrylic acid plastic	EAA	Basic Polymer: EAA	polycarbonate	PC	Basic Polymer: PC
ethylene-butyl acrylate plastic	EBAK	Basic Polymer : EBAK	poly(cyclohexylene dimethylene terephthalate)	РСТ	Basic Polymer: PCT
ethyl cellulose	EC	Basic Polymer: EC	polychlorotrifluoroethylene	PCTFE	Basic Polymer: PCTFE
ethylene-ethyl acrylate plastic	EEAK	Basic Polymer: EEAK	poly(diallyl phthalate)	PDAP	Basic Polymer: PDAP
ethylene-methacrylic acid plastic	EMA	Basic Polymer: EMA	polydicylopentadiene	PDCPD	Basic Duromer: PDCPD
epoxide, epoxy resin or plastic	EP	Basic Polymer: EP	polyethylene	PE	Basic Polymer: PE
ethylene-propylene plastic	E/P	Basic Polymer: E/P	polyethylene, chlorinated	PE-C	Basic polymer: PE-C
ethylene-tetrafluoroethylene plastic	ETFE	Basic Polymer: ETFE	polyethylene, high density	PE-HD	Basic Polymer: PE-HD
ethylene-vinyl acetate plastic	EVAC	Basic Polymer: EVAC	polyethylene, low density	PE-LD	Basic polymer: PE- LD
ethylene-vinyl alcohol plastic	EVOH	Basic Polymer: EVOH	polyethylene, linear low density	PE-LLD	Basic polymer: PE-LLD
perfluoro(ethylene-propylene) plastic	FEP	Basic Polymer: FEP	polyethylene, medium density	PE-MD	Basic polymer: PE-MD
furan-formaldehyde resin	FF	Basic Polymer: FF	polyethylene, ultra high molecular weight	PE-UHMW	Basic polymer: PE-UHMW
liquid crystal polymer	LCP	Basic Polymer: LCP	polyestercarbonate	PEC	Basic Polymer: PEC
methyl methacrylate-acrylonitrile-butadiene-styrene plastic	MABS	Basic Polymer: MMABS	polyetheretherketone	PEEK	Basic Polymer: PEEK

Important

Material name	Material symbol (JISK6899-1)	Option in IMDS (Substance name)	Material name	Material symbol (JISK6899-1)	Option in IMDS (Substance name)
polyetherester	PEEST	Basic Polymer: PEEST	Polysulfone	PSU	Basic Polymer: PSU
polyetherimide	PEI	Basic Polymer: PEI	polytetrafluoroethylene	PTFE	Basic polymer: PTFE
polyetherketone	PEK	Basic Polymer: PEK	poly(trimethylene terephthalate)	PTT	Basic Polymer: PTT
poly(ethylene naphthalate)	PEN	Basic polymer: PEN	polyurethane	PUR	Basic Polymer: PUR
poly(ethy oxide)	PEOX	Basic Polymer: PEOX	poly(viny acetate)	PVAC	Basic Polymer: PVAC
polyesterurethane	PESTUR	Basic Polymer: PESTUR	poly(vinyl alcohol)	PVAL	basic Polymer: PVAL
polyethersulfone	PESU	Basic Polymer: PES	poly(vinyl butyral)	PVB	Basic Polymer: PVB
poly(ethylene terephthalate)	PET	Basic Polymer: PET	poly(viny chloride)	PVC	Basic Polymer: PVC
polyetherurethane	PEUR	Basic Polymer: PEUR	poly(vinyl chloride), chlorinated	PVC-C	Basic Polymer: PVC-C
phenol formaldehyde resin	PF	Phenol-formaldehyde Resin	poly(vinylidene chloride)	PVDC	Basic Polymer: PVDC
perfluoroalkoxyalkane resin	PFA	Basic Polymer: PFA	poly(vinylidene fluoride)	PVDF	Basic Polymer: PVDF
polyimide	PI	Polyimide	poly(viny fluoride)	PVF	Basic Polymer: PVF
polyisobutylene	PIB	Basic Polymer: PIB	poly(viny formal)	PVFM	Basic Polymer: PVFM
polyisocyanurate	PIR	Basic Polymer: PIR	poly-N-vinylcarbazole	PVK	Basic Polymer: PVK
polyketone	PK	Basic Polymer: PK	poly-N-vinylpyrrolidone	PVP	Basic Polymer: PVP
polymethacrylimide	PMI	Basic Polymer: PMI	styrene-acrylonitrile plastic	SAN	Basic Polymer: SAN
poly(methyl methacrylate)	PMMA	Basic Polymer: PMMA	styrene-butadiene plastic	SB	Styrene-butadiene rubber
poly(N-methylmethacrylimide)	PMMI	Basic Polymer: PMMI	silicone plastic	SI	Silicone resin
poly(4-methylpent-1-ene)	PMP	Basic Polymer: PMP	styrene-maleic anhydride plastic	SMAH	Basic Polymer: SMAH
poly(a-methylstyrene)	PMS	Basic Polymer: PMS	styrene-a-methylstyrene plastic	SMS	Basic Polymer: SMS
poly(oxymethylene), polyacetal, polyformaldehyde	РОМ	Basic Polymer: POM	urea-formaldehyde resin	UF	Basic Polymer: UF
polypropylene	PP	Basic Polymer: PP	unsaturated polyester resin	UP	Basic Duromer: unsaturated polyester resin
polypropylene, expandable	PP-E	Basic Polymer: PP-E	vinyl chloride-ethylene plastic	VCE	Basic Polymer: VCE
poly(phenylene ether)	PPE	Basic Polymer: PPE	vinyl chloride-ethylene-methyl acrylate plastic	VCEMAK	Basic Polymer: VCEMAK
poly(propyl oxide)	PPOX	Basic Polymer: PPOX	vinyl chloride-ethylene-vinyl acetate plastic	VCEVAC	Basic Polymer: VCEVAC
poly(phenylene sulfide)	PPS	Basic Polymer: PPS	vinyl chloride-methyl acrylate plastic	VCMAK	Basic Polymer: VCMAK
poly(phenylene sulfone)	PPSU	Basic Polymer: PPSU	vinyl chloride-methyl methacrylate plastic	VCMMA	Basic Polymer: VCMMA
Polystyrene	PS	Basic Polymer: PS	vinyl chloride-octyl acrylate plastic	VCOAK	Basic Polymer: VCOAK
polystyrene, expandable	PS-E	Basic Polymer: PS-E	vinyl chloride-vinyl acetate plastic	VCVAC	Basic Polymer: VCVAC
polystyrene, high impact	PS-HI	PS-HI (HIPS)	vinyl chloride-vinylidene chloride plastic	VCVDC	Basic Polymer: VCVDC

 The substances described above are examples for resins. In addition to the above substances, you can use many other registered options for resins not defined by industry standards and polymer alloys (mixtures of multiple polymers).

Reference : How to Enter Epoxy Resins

<Rule> •Resins used for adhesives and sealants must be stated in the cured state. •If declarable substances are contained in the cured state, they must be declared/reported. IMDS Recommendation 001a

<Recommendation>

•For cured epoxy resins, except for declarable substances, it is recommended to use pseudo substances such as Basic Duromer: Epoxy resin (CAS no. unassigned).

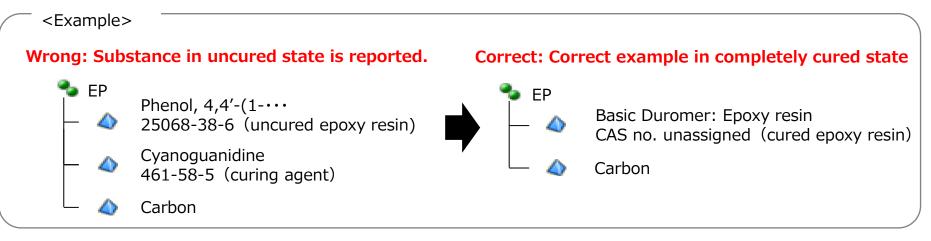
IMDS Recommendation 012

<Points requiring special attentions>

- When entering both uncured resin and curing agent, combine them into a pseudo substance.*
- If no curing agent is contained, enter the uncured resin as a pseudo substance.*

*Note: If data obtained from supplier contains also a cured epoxy resin, the uncured resin and curing agent may be unreacted substances. Be sure to contact the supplier for their presence and percentage content. If they remain as unreacted substances, no change is necessary.

• If uncured resin is bromide, use Basic duromer: Brominated epoxy resin as pseudo substance. (Refer to the next page: Select an optimal pseudo substance)

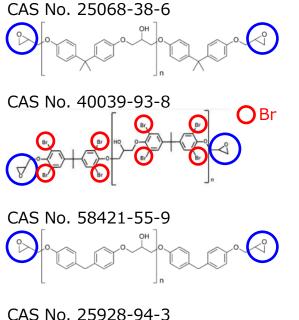


The followings show the correspondence between uncured and cured epoxy resins. Some uncured epoxy resins cure alone, but those having only two epoxy groups (\bigcirc part) attached per molecule cannot cure* alone because they cannot form a network structure geometrically.

Important

*Note: As molecular weight increases, even such uncured resins become solid alone due to thermoplasticity (linear aggregate) but do not cure (network structure formation).

Uncured epoxy resin



Cured epoxy resin

CAS no. unassigned

Basic duromer: Epoxy resin

CAS no. unassigned

Basic duromer: Brominated epoxy resin

CAS no. unassigned

Basic duromer: Epoxy resin

CAS no. unassigned

Basic duromer: Epoxy resin

CAS no. unassigned

Basic duromer: Epoxy resin



(3) To reflect the latest engineering and material changes

<Rule> The addition of any new material(s) or the elimination of any already reported material(s) contained in a part requires the revision and resubmission of the corresponding MDS. IMDS Recommendation 001 Rule 3.2.1.B

<Points requiring special attentions>

 If there is a change in substance data due to engineering change or material change/addition, resubmission is required.
 Example of change: from one coating layer to two layers
 Example of change: from lead containing part to lead free part

(4) To pass material data along supply chain

<Rule> Material data must be passed along the supply chain (tierⁿ \rightarrow tierⁿ⁻¹ $\rightarrow \cdots \rightarrow$ automobile manufacturer).

Material data must only be created by material-producing companies.

IMDS Recommendation 001 Rules 3.1.A and 4.4.1.E

<Points requiring special attentions>

- Material components data must be entered by material-producing companies.
- Part suppliers must create part data with material data obtained from materialproducing companies.

(5) To report by homogeneous material basis

<Rule> Entry requires material division into each homogeneous material.

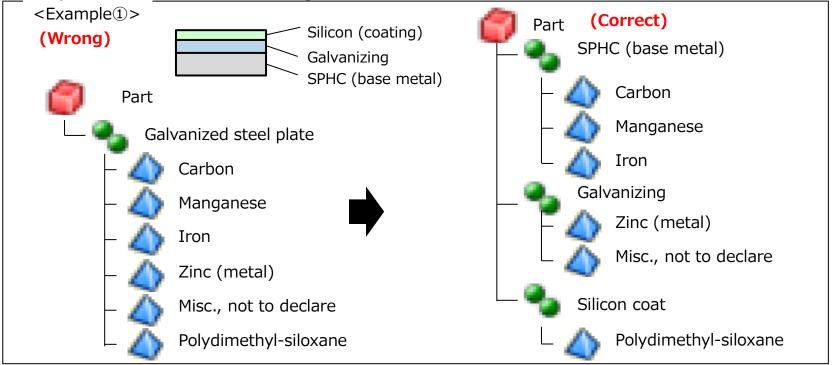
IMDS Recommendation 001 Rule 4.4.1.D, 001a 1.1 Selection of Material Classifications in IMDS

<Points requiring special attentions>

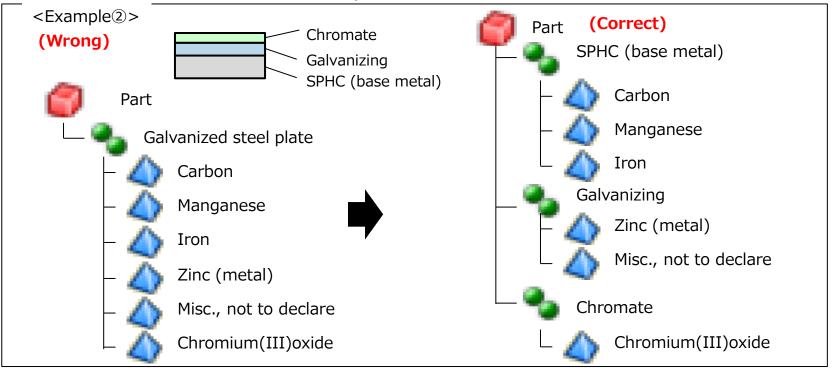
• Homogeneous means a consistent material composition which cannot be mechanically separated into multiple different materials.

Check that described individual materials are homogeneous.

Steel plate with silicon coating



In case of chromate treated steel plate



(6) To report Polymeric Parts Marking information

<Rule> If the following conditions are met, the Polymeric Parts Marking question must be answered.

Criteria value: "VDA classification 5.1.x or 5.4.x" and "More than 100 g" "VDA classification 5.2 or 5.3" and "More than 200 g"

> IMDS user manual, 3.3.9 Polymeric Parts Marking Summary of the JAMA/JAPIA Standard Material Datasheet version upgrade (Ver. 2.32), 3. Check specification

<Points requiring special attentions>

- "N (No)" means that parts are not marked as required, which is an unexpected case under normal circumstances. You must not answer "N (No)."
 - * If weight less than the criteria value is the reason for no marking, you give "N/A (Not Applicable)" answer.
- The component parts of a purchased assembly also requires an answer to the Polymeric Parts Marking question if the VDA classification and weight conditions are met.

(7) To report component real weight

<Rule> Real weight of any component (measured weight) must be given.

IMDS Recommendation 001 Rule 4.2.2.A

<Points requiring special attentions>

• Report real weight by checking weight given on drawing and referring to measured weight.

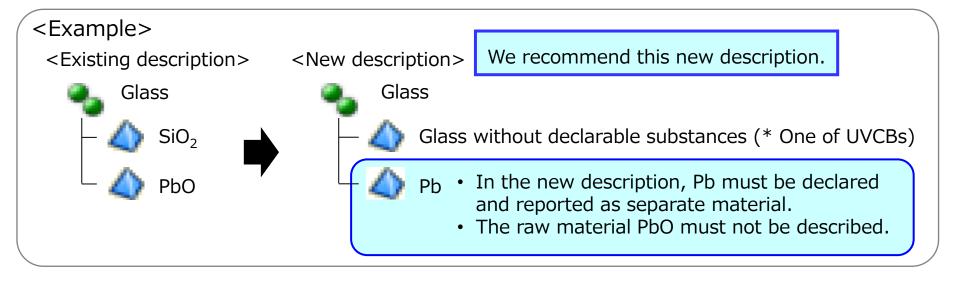
(8) How to Enter Components of Glass

<recommended< th=""><th> Newly created MDSs for glass, ceramic, and enamel must be described by using a single (pseudo) substance for the basic simple material. If existing data is unchangeable, the MDS can continue to be used. If glass contains any declarable substance, this has to be specified in addition, according to the general rules of IMDS Recommendation 001. </th></recommended<>	 Newly created MDSs for glass, ceramic, and enamel must be described by using a single (pseudo) substance for the basic simple material. If existing data is unchangeable, the MDS can continue to be used. If glass contains any declarable substance, this has to be specified in addition, according to the general rules of IMDS Recommendation 001.
	IMDS Recommendation 001a 2.6 MDS creation for glass, ceramic and enamel Data input sample Sheet: Sample 10 (Glass) http://www.japia.or.jp/English/datasheet.html

<Points on entry>

• When creating new data, use UVCB (*).

*UVCB: Substances of Unknown or Variable composition, Complex reaction products or Biological materials



(9) To enter material name in the name field of material data

<Rule> The material name must be entered in name field of material data.

IMDS Recommendation 001 Rule 4.4.2 Information Given in Material MDSs

<Points requiring special attentions>

• If there is a name specified in a formal material standard (JIS, ISO, etc.), be sure to enter the formal name.

If you cannot use the above, please enter as follows.

- •Specific name that identifies the type of material (Example: Carbon steel, Stainless steel, etc.)
- •Material symbol and material code registered in JAMA sheet (Example: FE, AL, SINTERFE, ABS, PC, etc.)

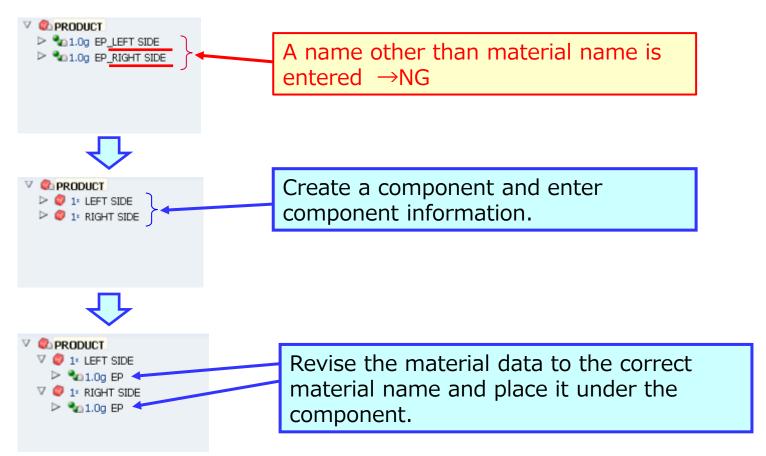


If the following contents are entered, it will be NG, so enter the material name correctly. (We may receive reject from our customer.)

Case of NG	Main cases	NG input example (Red line)
A name other than material name is entered	Component name is entered.	FINISHING CENTER TAPE
	Trade name is entered.	▷ 🗞 ABC-123
Material name is entered, but other name is also entered.	Component name is entered.	
fiame is also entered.		
	Trade name is entered.	INK_AAA-235

As a method when you want to indicate the place of use (component information) of the material, the corresponding example is described below. If you want to distinguish the same material in a component, you can do it this way.

<Correspondence example>



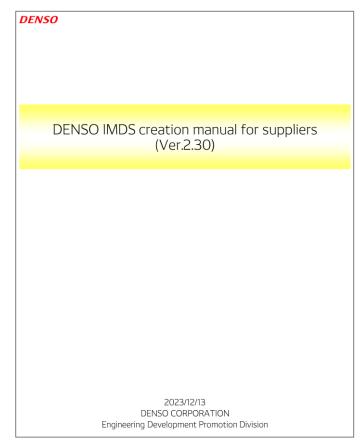
7. IMDS report using DENSO part number (supplementary information)

7. IMDS report using DENSO part number (supplementary information)

For parts delivered using DENSO part numbers, please apply the DENSO version manual below.

<urb/>URL>

https://www.denso.com/jp/ja/about-us/sustainability/society/supply-chain/green-procurement/

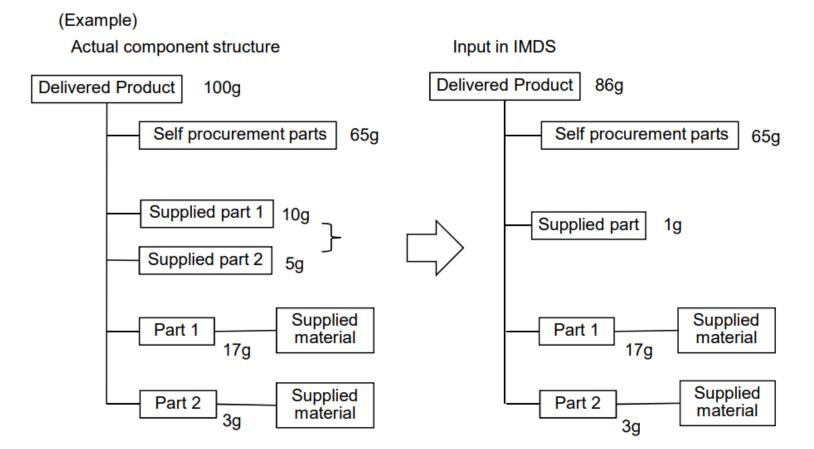


If you have supplied parts, materials, please take the following steps. (See next page for example)

※Excerpt from DENSO's [Suppliers Quality Assurance Manual (SQAM)]

Items	Supplied Parts (cases where the mass does not change in the supplier's process)	Supplied Materials and Supplied parts (cases where the mass changes in the supplier's process)
Data used for supplied items	Supplied part (IMDS ID:940087927/1)	Supplied material (IMDS ID:940039686/1)
Mass	The supplied parts are 1g. (Calculate the mass of the delivered product, assuming that the supplied parts weigh 1 g.)	Enter the actual mass using the supplied material. Enter the final material, mass of parts.
Quantity	Enter "1".	Enter the quantity of parts that use the supplied material.
Other	If there are multiple supplied parts, use one supplied part data. (No need to enter multiple supplied parts data)	If there are multiple supplied material, enter each one. In that case, enter a dummy part. The dummy part number is arbitrary.

※Excerpt from DENSO's [Suppliers Quality Assurance Manual (SQAM)]





8. Inquiries

Please contact the below office for questions concerning the IMDS operation method, data creation method, education, manuals, rule, setting method, and the like.

<IMDS Service Center>
(Japan)
e-mail : jpimds-helpdesk@dxc.com
Tel : 03-4530-9270
https://public.mdsystem.com/ja/web/imds-public-pages/imds-service-centers

[Other country]

Please refer to the homepage below. https://public.mdsystem.com/ja/web/imds-public-pages/imds-service-centers

Please contact the contact person below when you have questions or comments regarding DENSO TEN specific requests.

[Japan]

DENSO TEN Limited Engrg Mgt Div. Engrg Mgt Dept Standard Management Sect e-mail : ten-jama_soc@mlst.denso-ten.com

[Other country]

Person in charge of DENSO TEN overseas bases

Effective date		Revision description
1.00	Created on Sep. 4, 2019	Newly created
1.01	Revised on Nov. 25, 2019	 Added "list of Company ID(Org. ID)" (Page 13) Added contact information (Page 25,50)
1.02	Revised on Jun. 26, 2020	 Change of our department name (Page 31, 58) Added sheet Input example of basic items (Page 13~16) Recyclate (Page 28) Target part number of submission (Page 29) Method of submission(Raw material) (Page 32) How to enter the name field of material data (Page 56)
1.03	Revised on Oct. 1, 2021	 Change of Method of submission(Raw material) (Page32、33) from component to semi-component Change and delete the name of our overseas procurement base (Page 17)
1.04	Revised on Feb. 16, 2022	 Added "How to check answer of the recyclate information" (Page 29) Added NG example and correspondence example of name field of material data. (Page 59, 60)

	Effective date	Revision description
1.10	Revised on Mar. 28, 2023	 Item 1(2) Revise description of scope of application (Added contents about Denso Ten part number, Denso part number) Item 4(5) Added unusable application codes. Added page of application codes that can be used depending on the purpose. Item 4(8) Added the contents of the part number to be submitted in the case of multi-part drawing Item 6(5) Added example of homogeneous material (added common example)
1.20	Revised on Jun. 2, 2023	 Item 4(7) Reflection of changes in IMDS Release 14.0 for recyclate information Cover、 Item 4(9)、 Item 7 Change department name (After change : Engrg Mgt Div. Engrg Mgt Dept Standard Management Sect)
1.30	Revised on Mar. 1, 2024	•Item 7 Added supplementary information regarding IMDS report using DENSO part number.

DENSO TEN