IMDS REPORTING INSTRUCTIONS

**Nexteer Automotive
3900 E. Holland Rd.
Saginaw, Michigan
48601-9494**

Introduction

The IMDS (**I**nternational **M**aterial **D**ata **S**ystem) is an active tool that aids all suppliers in the automotive supply chain to register material data for all components (the materials they are made from, and the basic substances those materials consist of) that are used in products produced for the automotive industry. Suppliers submit the material information for their products to their customers by interacting with the IMDS program by inputting the required data fields to name, describe, and classify the various levels of material in their product. Nexteer Automotive subscribes to the Global Automotive Declarable Substance List (GADSL) and accepts material data sheets created following IMDS recommendations and the Nexteer Automotive guidelines in this document.

The intentions of these guidelines are as follows:
> ➢ Help to create data that is useful and accurate for the recipient (Nexteer Automotive and its constituents).
> ➢ Receive and maintain the data in a concise and clear manner.
> ➢ Create data that will satisfy legal demands and help with the disassembly and recycling at the end of vehicle life.

IMDS submissions aid in the tracking of materials used in the auto industry. The legislation is changing regularly, and the submissions to IMDS help the supply chain in the automotive industry maintain the integrity of the legislation by preventing the use of hazardous/banned materials in components used in the automotive industry. IMDS aids the customer in the supply network to verify the contents of their purchased parts before and during the part approval process. The Production Part Approval Process (PPAP) **requires** IMDS submission for each part number before PPAP approval can be granted to the supplier. Any changes to the part that affect material content requires a resubmission to IMDS for the new Rev level of the part or for the new part number associated with the part change.
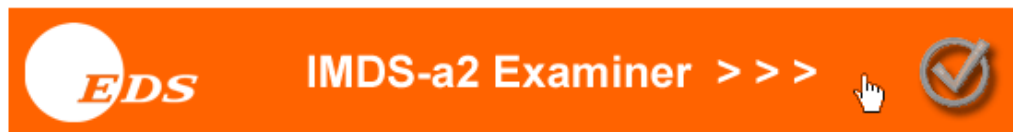
Per the End-of-Life Vehicle (ELV) Directive, vehicles become scrap at a predetermined age. If the contents of the vehicle are to be recycled or disposed of in an environmentally friendly manner, the contents have to be identifiable for recycling based on cost, ecology and technical possibility; or disposed of in a manner that is non-hazardous to mankind and the environment.

The objective of this document is to provide Nexteer Automotive's suppliers with supporting instructions and clarification for IMDS reporting per the SSSC 23000000 specification. For further IMDS training information go to www.mdsystem.com, select the IMDS Public Pages, and select Frequently Asked Questions (FAQ). Each of the frequently asked questions leads to a training module related to that topic. More information on FAQ's is contained in the Appendix of this document.

Material Information Submission

There are four basic steps for entering and releasing SSSC 23000000 specification data to Nexteer Automotive by using the IMDS:

1) IMDS REGISTRATION
2) DEFINING MATERIALS IN IMDS
3) CREATING DATA SHEETS
4) RELEASING MDS INFORMATION TO NEXTEER

IMDS Home Web Page (www.mdsystem.com)

1) IMDS REGISTRATION

A company must first be registered with IMDS to use their services. There is no charge to register and use the IMDS.

To register a company, go to the IMDS public pages, select the contact button, and follow the online registration hyperlink (Online registration). Complete all required fields that are located in the online registration form and IMDS will provide a Company IMDS ID. It is important to note that your company may already be registered. Please contact the appropriate IMDS help desk for your geographic region to determine if your company already has one or more company IDs, the company Client Manager and contact information. If your company is already registered, you will be directed to your company's IMDS client manager to establish an IMDS ID, if needed, within your existing company ID.
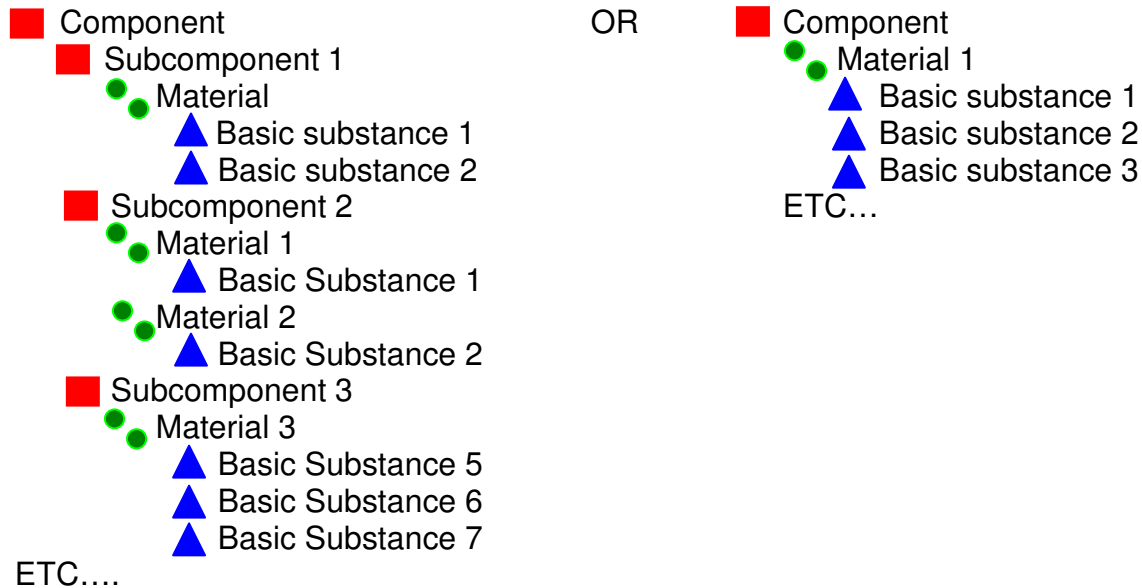

IMDS Contact Screen (Online Registration)

2) DEFINING MATERIALS IN IMDS

Product Definition

Suppliers must define all materials in the product supplied to Nexteer Automotive. All materials must be defined and identified prior to creating the product tree structure. One possible method is to use the product bill of materials (BOM) and create an outline of the product. The outline will also help develop the "tree structure" that will be part of the product IMDS submission.

Consider the following outline formats:

■ Component   OR   ■ Component
   ■ Subcomponent 1   ● Material 1
     ● Material   ▲ Basic substance 1
       ▲ Basic substance 1   ▲ Basic substance 2
       ▲ Basic substance 2   ▲ Basic substance 3
   ■ Subcomponent 2   ETC...
     ● Material 1
       ▲ Basic Substance 1
     ● Material 2
       ▲ Basic Substance 2
   ■ Subcomponent 3
     ● Material 3
       ▲ Basic Substance 5
       ▲ Basic Substance 6
   ▲ Basic Substance 7
ETC....

The component is the final salable assembly; it can be composed of subcomponents, their materials and basic substances, or one material and its basic substances, or any combination in between. The first step is to break the BOM into the appropriate groupings – determine the subcomponents, the material(s) each is composed of, and the basic substances that compose each material. Determining this "structure" for the component serves two purposes – first it organizes the content that can be pulled from existing data in the supplier system versus that which must be created by the supplier in IMDS, and second the exploded content picture makes for a good "checklist" to make sure all substances are included in the submission tree. With the continuing changes in what is considered hazardous, each basic substance must be accounted for because of future ramifications. Examples of material tree structures are available in the Appendix under the sub-heading Tree Structure Development

Nexteer Automotive expects our suppliers to understand and utilize the IMDS recommendations that the IMDS Steering Committee OEM members have approved.

Material Definition

The IMDS Steering Committee has published several recommendations for defining materials for creating Material Data Sheets (MDS). In these recommendations, the guidelines for MDSs in different material categories are defined. The IMDS recommendations can be found on the **MENU** screen under **Recommendations** in the left navigation menu. Use the right scroll bar to reach each Recommendation title and view the contents.
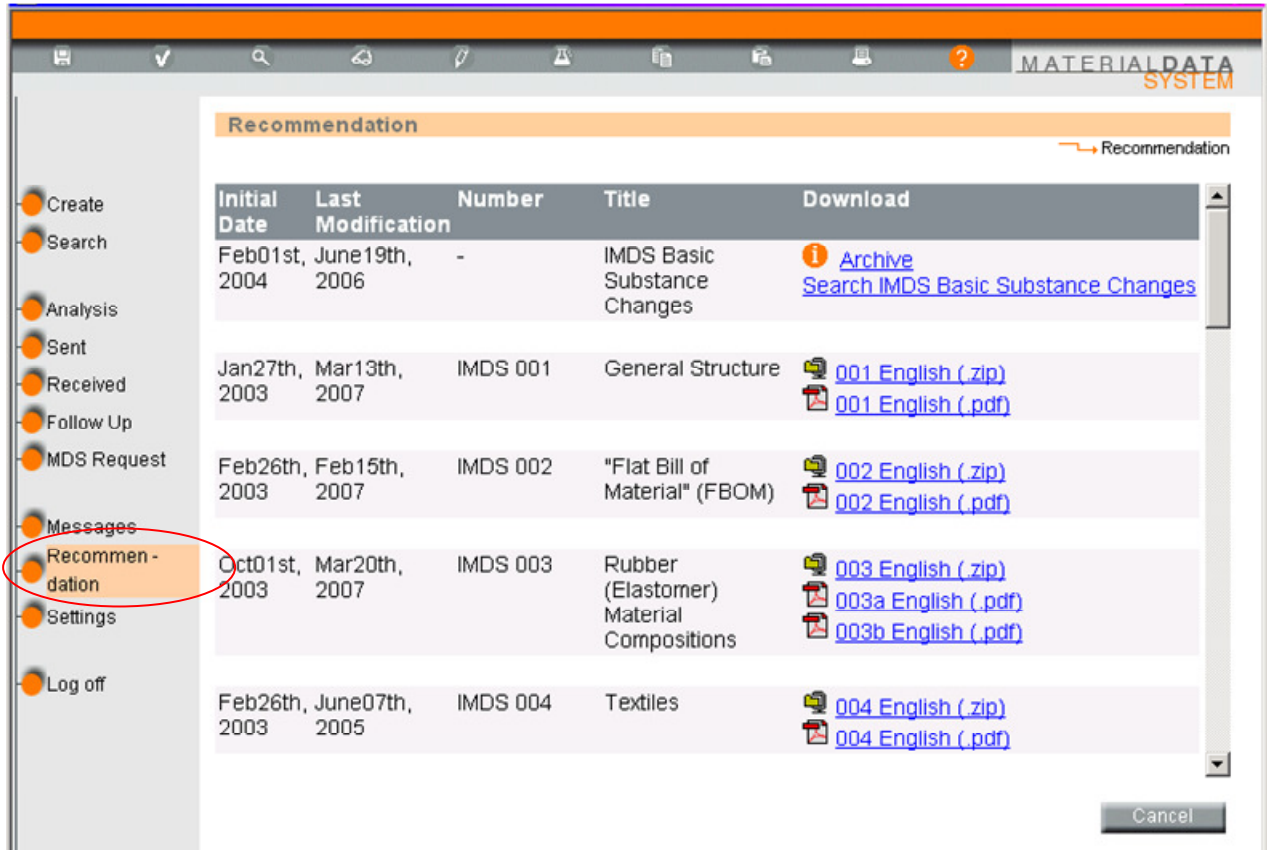
Note: IMDS 002 was updated 2/15/2007 eliminating the use of the "Flat BOM" reporting except in certain identified components as noted in the IMDS recommendations (example: IMDS 019).

Table 1 IMDS Recommendation Titles

Number	Title
IMDS 001	**General Structure**
IMDS 003	Rubber (Elastomer) Material Compositions
IMDS 004	Textiles
IMDS 005	Leather
IMDS 006	Automotive Lubricants
IMDS 007	Steel Flat Products (strips and sheets)
IMDS 008	Electroplated (electrolytically deposition) fasteners
IMDS 009	Components with electrolytically deposited coatings
IMDS 010	Plastic Material Compositions

| IMDS 011	Nonmetallic Coatings
IMDS 012	Automotive Sealers and Adhesive Products
IMDS 013	Thermoplastic Elastomer (TPE) Material Compositions
IMDS 014	Automotive Lighting
IMDS 015	Automotive Steering Systems
IMDS 017	FRB Fibre Reinforced Plastic Products (Thermosets)
IMDS 018	Automotive Glazing Parts
IMDS 019	E/E (Electric/Electronic) components
IMDS 020	Thermal systems
IMDS 021	Spin-on Oil Filter
IMDS 022	Change Management
IMDS 023	"Preliminary IMDS" during the Prototype Phase

IMDS 001

IMDS 001 is the general recommendation for the requirements for MDS creation. Each succeeding recommendation is expansion of the general recommendation for specific material applications. Each recommendation expands the IMDS requirements in relation to that specific material category, and where applicable, gives guidance through the following:

➢ Definition of those items that fall into the particular recommendation.
➢ Where applicable the ranges and tolerances for the pure substances that are not part of the IMDS publications.
➢ Example tree structures appropriate to the material within the recommendation.
➢ Example searches in IMDS, synonyms for the material, and miscellaneous information that can expand the material topic.

This information can be useful for developing the information for the tree structure for the material and its basic substances.

Data Sheet Definition

Every component, subcomponent, semi-component or material has its own MDS (Material Data Sheet). Each data sheet is built for the specific item and the material it is composed of.
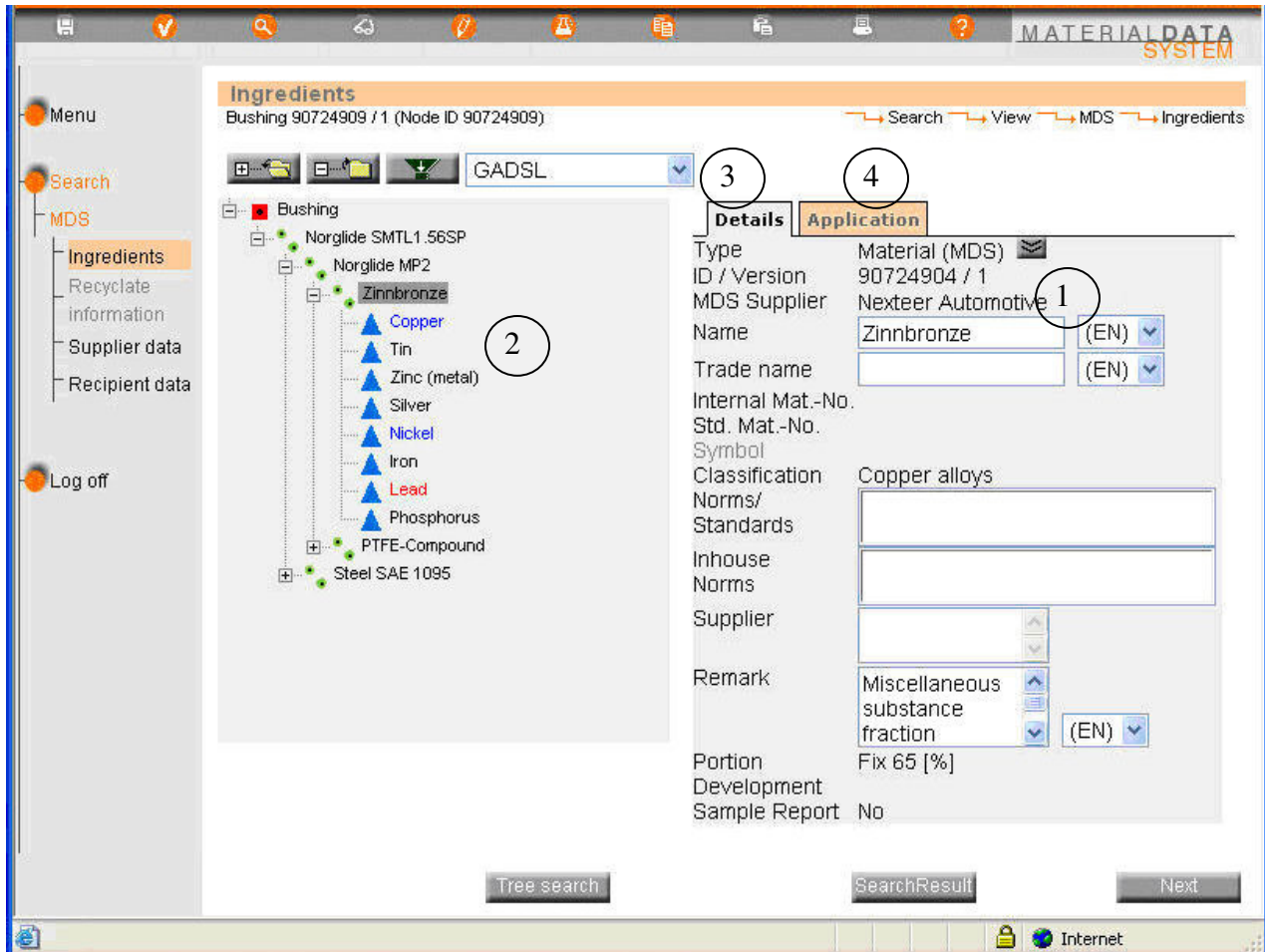
Each sheet will contain the following information:

1. A unique number assigned to the MDS by IMDS.
2. A tree structure of the component/subcomponent/semi-component or material.
3. A detail page composed of information that is specific to the item the data sheet is being developed for.
4. Where applicable, an application code page specific to basic substances that are prohibited and are required to be declared in their application.

MDS Number

In creating any data sheet in IMDS, a unique number is generated by the system and assigned to that data sheet. This unique number identifies the specific data sheet, and can be used for finding the data sheet in IMDS. Each data sheet, though unique in itself, can be used in the creation of another MDS for a higher level component, or another component with the same content in different weights or percentages.

<u>Tree Structure</u>

When creating a MDS in IMDS the left hand side of the page contains the material tree for the MDS. The components, subcomponents, semi-components, materials and basic substances that compose the main component of the MDS have to be inserted into the data sheet by adding the information into the material tree that is part of the MDS. The tree structure is like the outline suggested earlier in this guideline. Each level of the tree matches each level of the outline, and each level is characterized by a symbol / name combination. Each of these symbol / name combinations equates to a MDS that was created and then added to the tree for the main component. The symbol identifies the type of item in the tree, and is defined as follows:

Components / Subcomponents:

3.2 Component

3.2.1 Symbol

A component is a complete assembly or a component within an assembly that represents a completed part. A component must have at least one material, one semi-component or one component/sub-component attached to it. When breaking down a complete assembly, t*he subcomponents that make up the assembly should be signified with this symbol not that of a semi-component.*

Semi-Components:

3.3 Semi-Component

3.3.1 Symbol

A semi-component is not the same thing as a sub-component within a part. It is a semi-finished product, e.g. steel coil, pipe, leather hide, which will go through further process steps to make a finished component. A semi-component must have at least one material or one semi-component associated with it. IMDS recommendation 001 covers semi-components in more detail.

Materials:

3.4 Material

3.4.1 Symbol

A material normally consists of basic substances only. The total of all basic substances must be 100%. There are exceptions in which a material consists of other materials – this is covered in IMDS recommendation 001. A material must be described in the state which it has in the finished component.

Basic Substances:

3.5 Basic substance

3.5.1 Symbol

A basic substance is part of a material. They must be chosen from the existing list in the IMDS. They must be entered in the form it exists in the material. The total must be 100% (or over 100% if ranges are used). They must be associated with the most specific CAS-number (Chemical Abstract Services number assigned by the American Chemical Society).

More detailed information is available in the IMDS Recommendations. Some example tree structures of what is valid for a structure and what is unacceptable are available in the Appendix under the sub-heading Tree Structure Development

Detail Page

Every component, subcomponent, semi-component or material has its own MDS. When creating a MDS, specific data related to the item must be entered into the data fields of the detail page. This information is unique to the item, and in turn is unique to the item(s) that utilize these data sheets in creating the overall component. Some of the information is "auto-generated" by the IMDS program; the rest must be manually entered.

Each detail page has fields for the following information.

ID/Version:
ID numbers / Version numbers, are automatically generated by the system when a new component/subcomponent/material is created. With this number the item can be clearly identified, and can be retrieved in the system when needed for addition to a tree or for modification.

MDS Supplier:
Auto-generated - filled in with the name of the MDS creating company.

Name:
The material name should always define the material and not be generic. The material name shall be chosen from existing standards, e.g.

- for metallic material:
  - steel – e.g. **STM-C 540, ASTM 1008 CR-AKDQ,** (Steel / Iron List, EN 10027, JIS norms)
  - aluminium alloys – e.g. **Al-Si12** (EN 573, JIS norms,)
  - copper alloys – e.g. **CuAl5** (ISO norms)
  - etc.
- for plastics –e.g. **PE-LD, PA66** (ISO 1043-1 to 4 - see IMDS 010)
- for elastomers – e.g. **ACM** (ISO 1629 -see IMDS 003),
- for thermoplastic elastomers – e.g. **TPA-ES** (ISO 18064 -see IMDS 013),

A good source for material information is the Google search engine or MatWeb (see Appendix). The ISO specification pages are available for purchase on the internet as well.

Trade name:
Product trade name - for standard products which are defined in public norms (e.g. most metallic materials), this entry is not mandatory. In drawings these trade names are sometimes pre-defined. Then the entry is mandatory. For materials which are not defined in public norms (e.g. plastic materials, oils, fats, flake layers, glue etc.) this entry is not mandatory but useful in order to uniquely identify the product. The mandatory disclosure of materials and contained substances is not affected by the reporting of a trade name.

Material-Number:
For metallic materials (Classification 1 - 4), for which a material number is defined in public norms, this entry is mandatory. For other materials it is optional or even impossible (e.g. thermoplastics filled/unfilled or elastomers), because in some cases no material numbers are defined. (see Appendix)

Symbol:
Mandatory for thermoplastics (filled/unfilled, ISO 1043 1 - 4, see Recommendation IMDS 010), thermoplastic elastomers (ISO 18064, see Recommendation 013), and elastomers (ISO 1629, see Recommendation IMDS 003).

Classification:
Mandatory - All materials have to be assigned a correct classification.

Norms/Standards:
Public norms, in which material compositions are defined (e.g. EN, DIN, JIS, ASTM, ISO etc.). For materials described in these norms an entry is mandatory.   Nexteer Automotive **requires** norm/standard information for plastics (ISO 1043 – 1 thru 4 -see IMDS recommendation 010) based on the type of plastic; elastomers (see IMDS 003), thermoplastic elastomers (see IMDS 013), and metallic's (use the ASTM, JIS or ISO classification for the specific material). Some examples were listed under the "Name" on the previous page.

In-house norms:
Optional e.g. for materials which are not defined in public norms.

Supplier:
For data sheets which were not delivered by the supplier. This is only useful for small suppliers and should only be used exceptionally.

Comment:
Free text area, not searchable. Customer-required comments for this field are not acceptable / useful.

Initial sample:
This is optional at the moment. With the integration of IMDS into the development process this field becomes useful. For initial "prototype" samples, it gives basic information to the manufacturer to check for GADSL compliance and for recycling information (GADSL Declarable Substance List see Appendix).   The information submitted is based on "best knowledge" of the final product, but where material definition is lacking due to development 100% wildcards can be used. Details are published in Recommendation 023.

Application Codes

In the process of developing the MDS, the various components, subcomponents, semi-components and/or materials are added to the tree structure. Within the process of creating the MDS for the materials and their basic substances, certain materials have basic substances that are prohibited. These basic substances that are prohibited will be in red text when the tree is expanded, and require an "explanation" on the Application Codes tab in the MDS.   These substances, when exempted by the ELV Annex II in certain materials or uses, will have assignable application codes for the associated material.
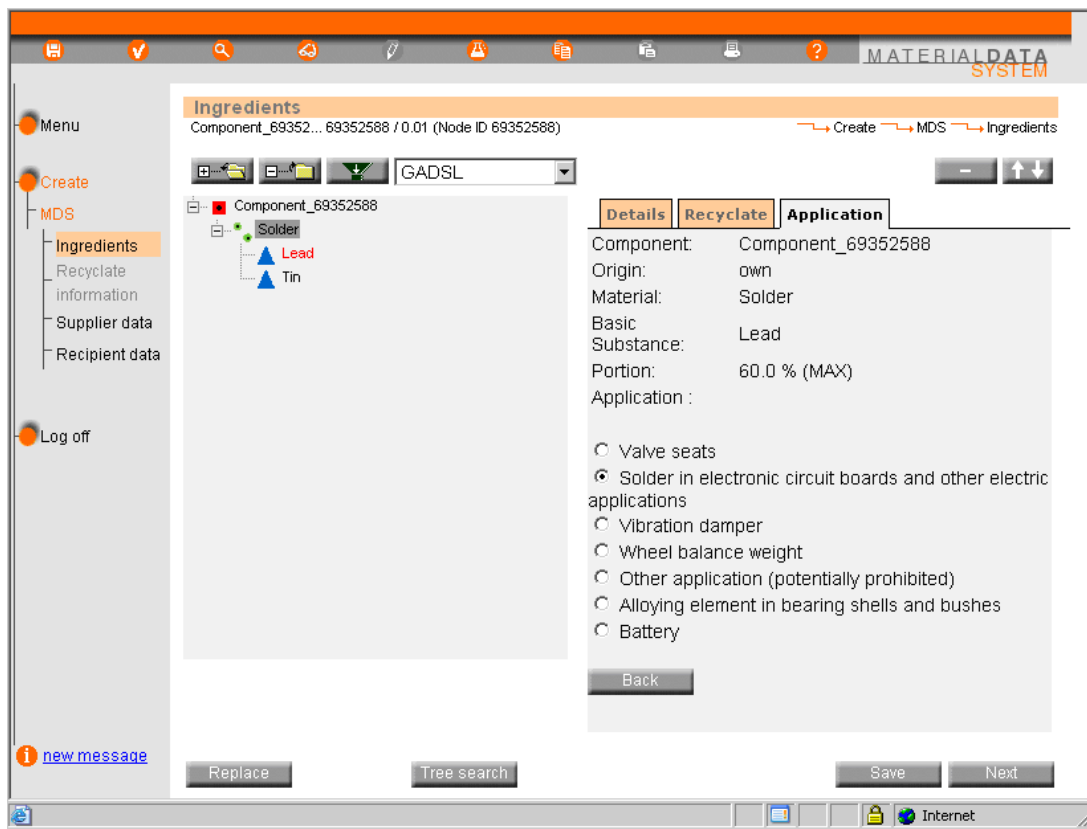
In this example, the lead in the solder is in red in the tree structure. It requires an application code from the application tab on the detail side of the MDS page. The choice should match the application in which the solder in being used. In this case the "Solder in electronic circuit boards and other electric applications" was chosen. Lead is one of the "prohibited and declarable" substances that have special guidelines surrounding their allowed use and reporting requirements.

These guidelines call out the requirements for documenting use when prohibited substances are used past ELV expiration dates, or are at usage levels exceeding GADSL specified limits. The next section defines the rules surrounding the use of prohibited and declarable substances in materials.

PROHIBITED AND DECLARABLE SUBSTANCES

➢ All prohibited and declarable substances must be reported if they are part of the formulation of the material. If GADSL limits for a prohibited substance are exceeded, a 23000000 Appendix A Prohibited Substance Approval Form must be submitted to Nexteer Automotive.
➢ See www.gadsl.org, the ELV Directive and its amendments, and SSSC 23000000 Appendix B for definitions of exemptions and threshold levels of substances.
  o Trace amounts, as an impurity, of prohibited substances do not need to be reported per the EU-ELV Annex II.
➢ For materials with substances exempted per Annex II, the substance must be shown as an ingredient in a material clearly identifiable as an exempted material with the appropriate application code (e.g. solder - lead).
➢ **It is the responsibility of the supplier of the parts or raw materials to ensure compliance with the requirements of the latest GADSL list and the ELV Directive 2000/53/EC and supporting amendments.**
➢ Application codes will be required for certain declarable substances as defined in IMDS. These application codes selections are determined by the material classification of the material containing the substance. The application code is added when the material is selected for a given component.
➢ As ELV exemptions expire, the application codes will still be valid in IMDS. However, a 23000000 Appendix A Prohibited Substance Approval Form should be submitted prior to the exemption deadline to Nexteer Automotive with notification of the substance, quantity, application, and when necessary plan of action to eliminate the prohibited substance from the product.

3) CREATING DATA SHEETS

The final component MDS is the compilation of individual MDSs for each component, semi-component, and/or material that makes up the final component.

These MDS pages can come from multiple sources:

1. A Supplier submitted MDS
2. An IMDS committee published MDS
3. Supplier published data
4. A specific MDS created by your company for a component or material.

A Supplier Submitted MDS

A submission received from a supplier by your company for a component or material that has been reviewed and approved, can be copied and applied to the MDS to be delivered to Nexteer Automotive, as long as processing does not change the basic substances.

This does not guarantee approval by Nexteer Automotive, but it does offer consistency in information transmission through the supplier chain.

An IMDS Committee Published MDS

Published information is accessed through the "Supplier MDSs" area in the search screen in IMDS. Click on the "published MDSs" check box, click on the plus "+" sign and search for IMDS, and update the supplier list to access the **IMDS Committee MDSs**.
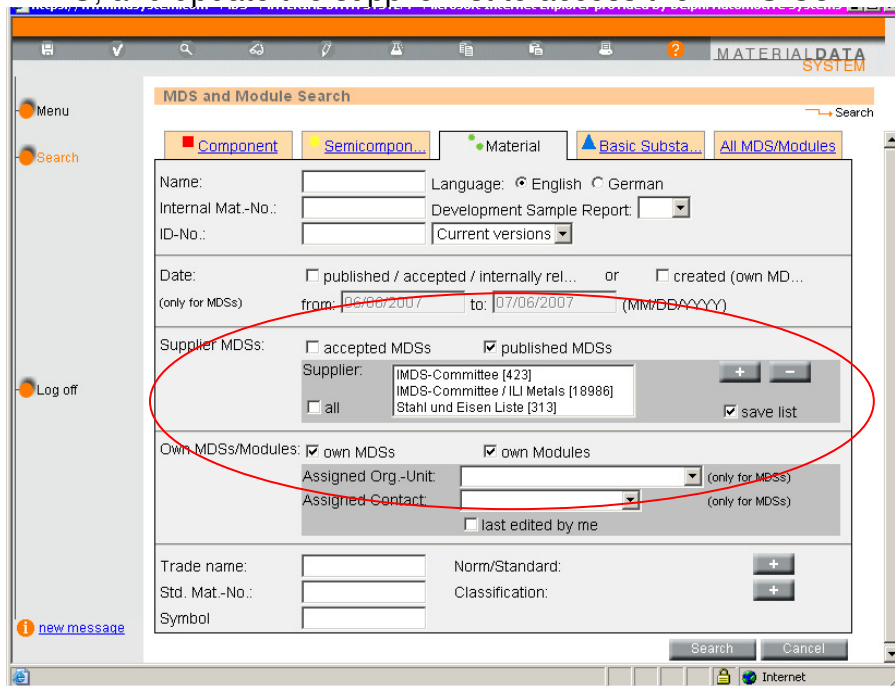
Highlight and apply all three IMDS committee sites to the Supplier MDSs area of the "Search" screen. The screen should appear as above with the check box checked for the published MDSs and the 3 IMDS committee sites shown in the window. Material retrieved from these sites is considered "pre-approved" for use in building your company's MDS for submission to Nexteer Automotive. A tutorial on how to use published data is available in the Frequently Asked Questions of the public pages under the question Where can I find a **walk through** of **creating an entry in IMDS?**?

A Supplier Published MDS.

This can only be used for materials with Nexteer Automotive's permission from a source that publishes their material data due to the volume of customers that use their material. Nexteer Automotive as a rule **does not accept published supplier data**, they require it sent/proposed to Nexteer Automotive for review and approval.

A specific MDS created by your company for a component or material.

Each Nexteer Automotive part carries a unique part number assigned by Nexteer Automotive. For each Nexteer Automotive part number purchased, a supplier must submit an MDS through IMDS or AIAG spreadsheet file which is representative of the

part and its materials that is being sold to Nexteer Automotive. This representative MDS is the compilation of all the materials used to make the part, generally grouped by the subcomponents that make up the final part. Each subcomponent has a unique MDS comprised of other MDSs representative of the materials and their basic substances. Because each is unique, the MDS must be created in IMDS for submission. Parts are "created" in three ways:

1. Copy - Copy
2. Copy –New Version
3. Create from new data

Copy - Copy

When the part is a modification of an existing part and receives a new part number, the new MDS for that part can be created from the preceding part's MDS (if it was created). Using the COPY – COPY feature in IMDS, a copy of the existing MDS is created and given a new MDS number. The content from the original is carried over into the new MDS, and can then be modified appropriately to represent the new part number.

Copy – New Version

When the part is a modification of an existing part number, the new MDS carries the original IMDS number and gets a new version level. Using the COPY – New Version feature in IMDS, a copy of the existing MDS is created and given the next higher version number. The content from the original is carried over into the new MDS, and can then be modified appropriately. This feature works well for updating submissions that have been rejected after review by the customer, or for updating a submitted IMDS during the product development process.

Create From New Data

A new product will require development of new data. The MDS for the components, subcomponents and materials will be created from new data, or a combination of new and existing data. New components and materials are created within IMDS from the "Create" screen that is accessed by clicking on "Create" on the left menu bar of the main menu screen. In the create screen click on the button for the type of MDS to be created.
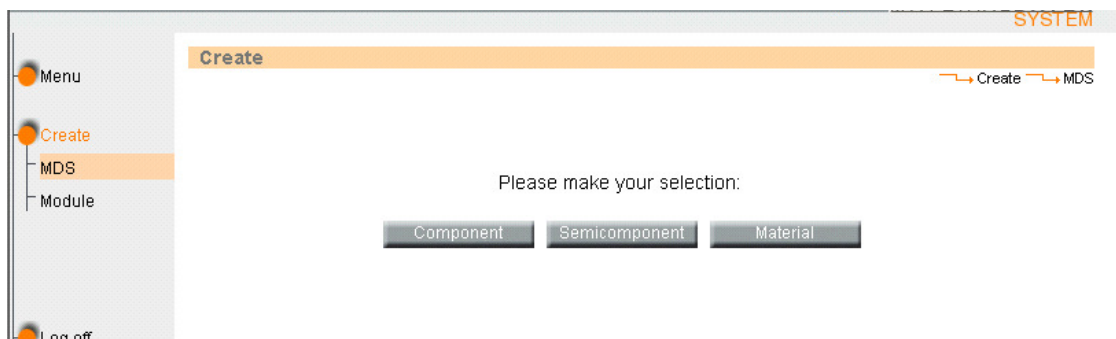
Component, Semi component and Material Creation Screen

Material Creation – the material is described in the state it has in the finished component. Only the basic substances which are contained in the final processed component have to be inserted - all solvents and process removed basic substances are not to be included.

When creating a material, the IMDS program will provide avenues to make the MDS creation marginally easier. The first window to open when creating a material is a list of "material classifications" that can be chosen from that represent the material. In creating a new material, start by clicking on the description that best describes the type of material the MDS is being created for. In the screen shot above, the choices for most of the metals are shown, but the list is much longer than is shown here. The appropriate description should be highlighted and the next button at the bottom of the screen clicked on. The choice populates the classification field for the material in the data sheet.

It should be noted the classification **"Plastics in Polymeric Compounds" *is no longer accepted by Nexteer Automotive.* This is in compliance with some of our customers no longer accepting this classification.

Within material classifications 5.1.a, 5.1.b and 5.3, IMDS will open a second screen to help in developing the information for the proper type of thermoplastic or elastomers. This screen will help to build the material symbol for the material. The example below is for thermoplastics with filler (5.1.a).


By entering the data in the fields of the drop down boxes, the plastic material, its fillers, and their percentages are built and added to the new material data sheet when the NEXT button is clicked.

After progressing through the screens, as described above, the material data page will be reached. When the material data page is reached, the basic substances representative of the material need to be retrieved and added to the tree using the button with the blue triangle in it. The percentage of each basic substance in the material must be entered and the material detail page needs to be completed with all applicable information. The Norm/Standard field needs to be input for most of the metals, and all of the plastics and elastomers. Norm/Standard information can be retrieved from the internet or the raw material supplier's material data sheet.

In creating a material the following key elements must be adhered to:

1. Define/name the material.
2. Each material must be defined by the basic substances (iron, carbon, polycarbonate, etc,) that make up the material. All of the substances must add up to 100%.
3. Declare all "Prohibited and Declarable" substances as defined in SSSC 23000000.
4. Up to 10% miscellaneous substances may be used to define a material.

These key elements are spelled out in the IMDS Recommendation 001 and the other more specific IMDS recommendations in greater detail, and in the appendix of this document. These key elements, when adhered to, improve the acceptance potential of any submission.
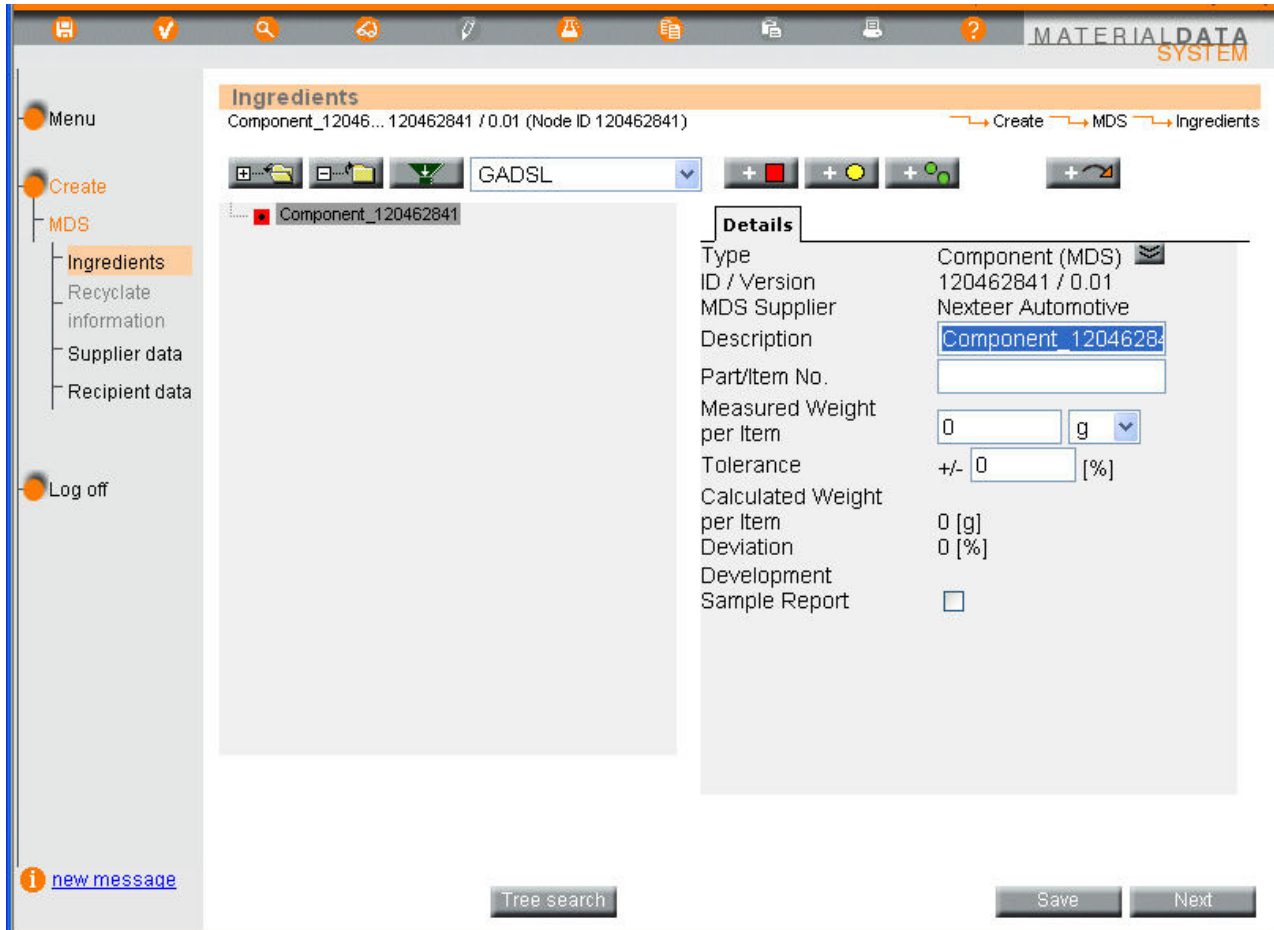
Component creation opens a new MDS data page. The data page is a blank page with an IMDS number attached. This blank page allows for addition of components or materials that make up the final component by clicking on the component and material addition buttons. Each component or material that is added must to be created and internally released into your company's IMDS account, or exist as accepted supplier data in your company's IMDS account.

Because each MDS has a unique number, that unique number can be used to locate the MDS after it is created for adding to the data tree. A component or subcomponent that is added has as part of its structure in its IMDS data sheet the materials and basic substances it is comprised of after all processing is completed.

After creation of each data sheet for each component, subcomponent, and material, each of the data sheets must be internally released within your company. Once the ingredients

page is complete, you may save the data, then proceed to select Supplier data in the left menu bar to enter the contact information for your company and click next.

Internal Release and Data Check

Next select Recipient Data in the left menu bar and release the newly created MDS **internally** by clicking on the "Internal" button at the top of the page. (This allows access to materials for component build.) If errors are found in the percentage totals for the basic substances or in any of the checked data fields, an error window will pop up displaying where/what the errors in the information are.
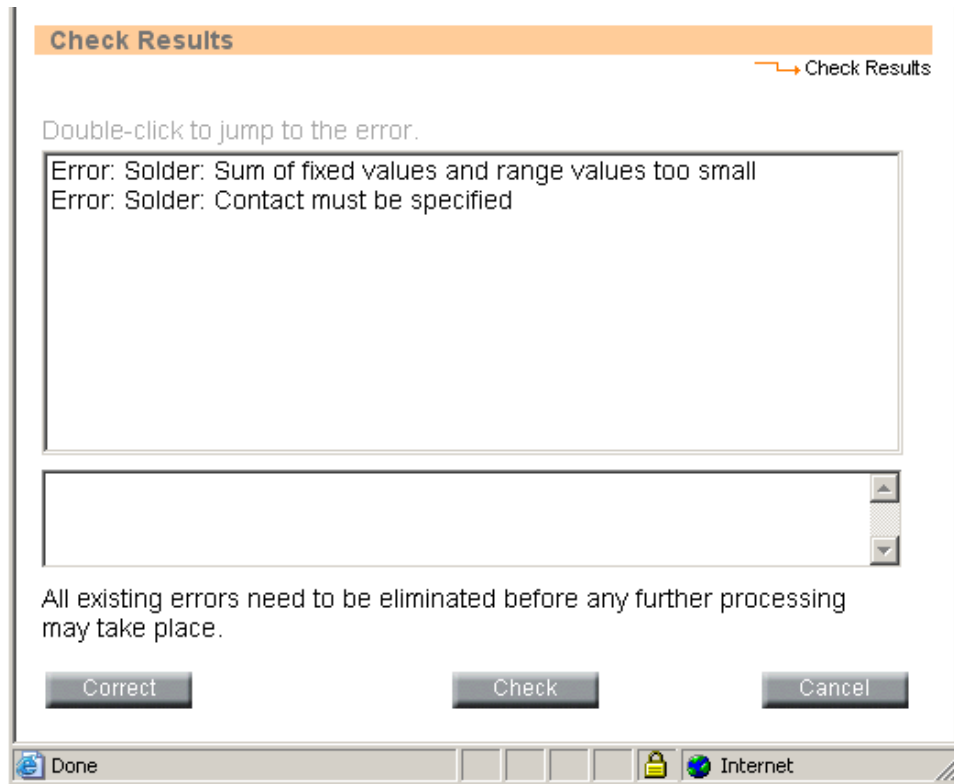
Each error must be addressed before the submission can be made. By highlighting each error in the list and clicking on the **Correct** button, the screen in which the error occurs will open to allow for error correction. The most common errors in developing materials are in the percents of the basic substances not adding up to 100%, or the ranges not being equal to or greater than 100%.

When all the errors have been resolved, clicking on the **Internal** button will return a screen with no errors and will have another **Internal** button to click, this will release the data sheet internally. The internally released MDS is now available for use in another MDS or for customer submission.

Make note of the MDS number assigned by the system. This number is a unique connection to the material when applying it to the tree structure for a component or subcomponent. Before any submission can be made to a customer, all content in the

submission must be internally released. This includes components and semi components as well as the materials.

When the final component MDS is complete, it must be internally released at your company in the same manner as the subcomponents and materials. In the "Create" menu click on "Suppler Data" in the left menu bar and complete the necessary information and save. Then click on "Recipient Data" and internally release the component within your company. If errors are shown, correct each one as directed earlier in this document, and then click "Internal" when all errors are corrected to internally release the document within your company IMDS account. This must happen first before the information can be submitted via IMDS to Nexteer Automotive.

A tutorial within IMDS is available through the following link:

Where can I find a **walk through** of **creating an entry in IMDS?**?

 4) RELEASING MATERIAL DATA SHEET (MDS) TO NEXTEER AUTOMOTIVE

To release IMDS to Nexteer Automotive, follow the steps below:

- Click on "Recipient" in the Create menu on the left menu bar. In the Recipient data screen, select **Add recipient**.
- In the search box that appears, type "Nexteer Automotive" in the company name box as the recipient of the MDS.
- Click on the search button.
- Select **Nexteer Automotive IMDS ID 75801**. *All submissions are submitted to Nexteer Automotive 75801 only.*
- Select "Apply" and the Company data screen will be displayed.
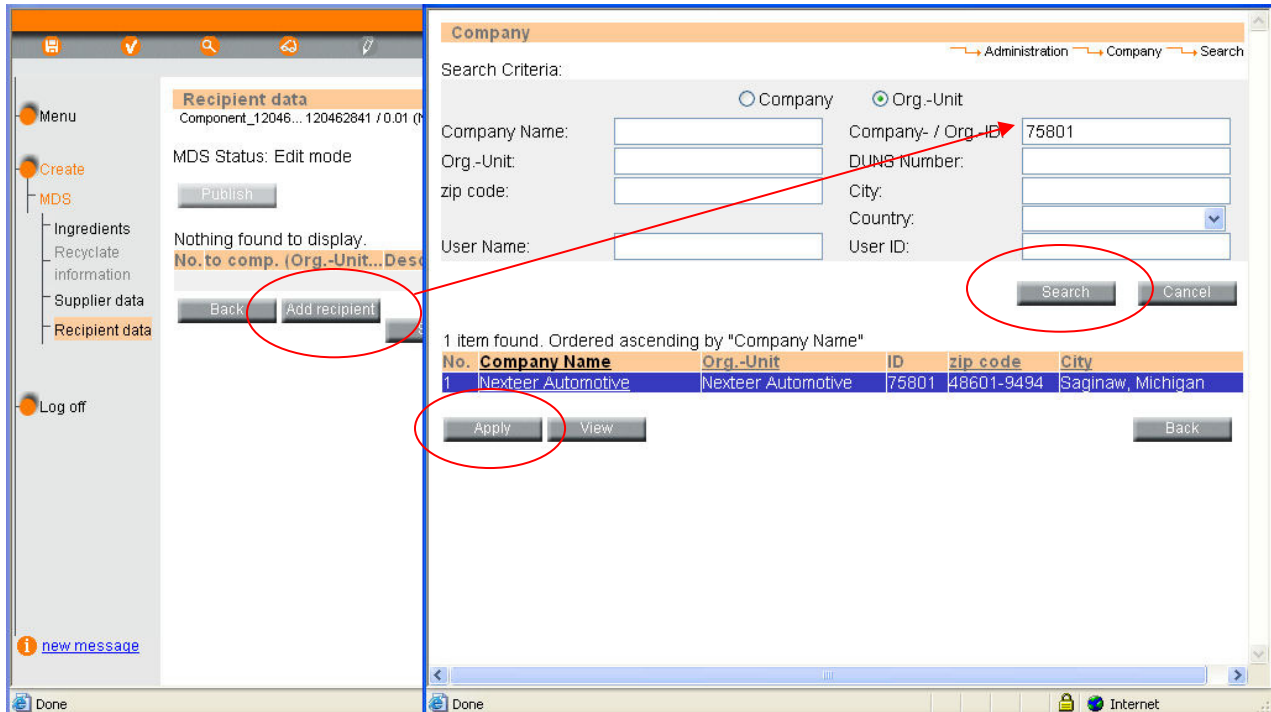
Recipient Screen Data and Company Search Box Screen

On the Company data screen the following information is <u>required</u>:

- Part number (**Nexteer Automotive Part Number**** not supplier part number)
- Description of the part
- Drawing number
- Drawing date *or* Drawing change level
- Date of report (today's date)
- Supplier code (manufacturing site DUNS number)
- Select "Forwarding Allowed"

**The Nexteer Automotive part number is normally input as 8-consecutive digits without decimals or spaces. There may be cases of legacy parts that may use a slightly different format.

Company Data Screen

- If your DUNS number is unknown please contact purchasing for the correct DUNS number for your company. For questions on submitting SoC information, send e-mail to the following address: Saginaw.Steering.SSSC.SoC@delphi.com

- Click the "Change" button when complete.

- Select the **"Propose"** or **"Send"** button to initiate MDS release to Nexteer Automotive. DO NOT use the "Publish" button as this will publish the information in IMDS, and Nexteer Automotive does not accept published data from suppliers

- If an error message is displayed, MDS cannot be released.

- Rectify all errors on the appropriate screens and select send/propose again.

- MDS will be released to Nexteer Automotive when all IMDS system errors have been corrected.

The Recipient Status will change based on the status of the submission.

- Not Yet Browsed – The submission has been received by Nexteer Automotive, but has not been opened/viewed.
- Browsed – The submission has been opened/viewed, but disposition has not been made.
- Rejected – The submission has been rejected by Nexteer Automotive. The rejection reason can be viewed to determine the proper action to resubmit.
- Accepted – The submission has been viewed and approved and an approval letter will b sent by Nexteer Automotive for the part.
- Edit Mode – The submission is not ready to submit because it has not been internally released
- Modify – The submission is being modified at the supplier – it has not been released internally or submitted
- Cancel by Supplier – The submission has been cancelled by the supplier. This can be due to a change that needs to be made to the submission that was overlooked in the initial creation process.

Rejection Reasons

The following are the **most common reasons for submission rejection**:
- ➢ Submission was not made to the Nexteer Automotive part number.
- ➢ Drawing date or drawing revision level is missing from the company data sheet.
- ➢ Missing or incorrect Norm/Standard on the detail page – especially for plastics.
- ➢ The material name does not define the material.
- ➢ Incorrect material classification.
- ➢ Missing or incorrect Material Number.
- ➢ Missing or incorrect Application Code (prohibited substances).
- ➢ Missing the 9-digit Supplier Code (DUNS number).
- ➢ Incorrect Structure in the Material Tree.

Most of these items are covered more extensively in the Appendix that follows.

Appendix

International Material Data System (IMDS): http://www.mdsystem.com/index.jsp

GADSL Declarable Substance List: http://www.gadsl.org/ - use the Excel link
Reference File 2007 to view the declarable substance list.

Frequently Asked Questions

IMDS offers in its public pages a section answering the most frequently asked questions. In the "How to Tips" section, the questions are answered in slide show presentations that address the "how to…" for the subject.   The following is a step-by-step to reach the FAQ page and how to get to the various topics.

Go to the IMDS Home Web Page (www.mdsystem.com)
Click on: Public IMDS Pages
Then click on: FAQ – second item from the bottom on the left menu bar –
Choose: **How to Tips** in the drop down menu – and review the questions. Most have a downloadable file attached with step-by-step instructions on the question topic. The most useful question answered is   Where can I find a **walk through** of **creating an entry in IMDS?**?

Browse the other dropdowns, or use "All Categories" and browse all the questions to see if they apply to the difficulty that is being experienced.

Norms/Standards

To find ASTM, JIS or other standards for metal material grades, go to Google or MatWeb and type in Steel Grades, Steel Specifications, Aluminum Grades, ASTM steel, ASTM Aluminum, ASTM Copper, ISO etc. These are the **types** of searches that can help get the Norm/Standard for various materials. If the material name is known, enter it in the search, it may provide the information for the Norm/Standard in the search return text. This is usable for materials other than metals as well such as plastics, duromers, etc.

Some **Examples**:

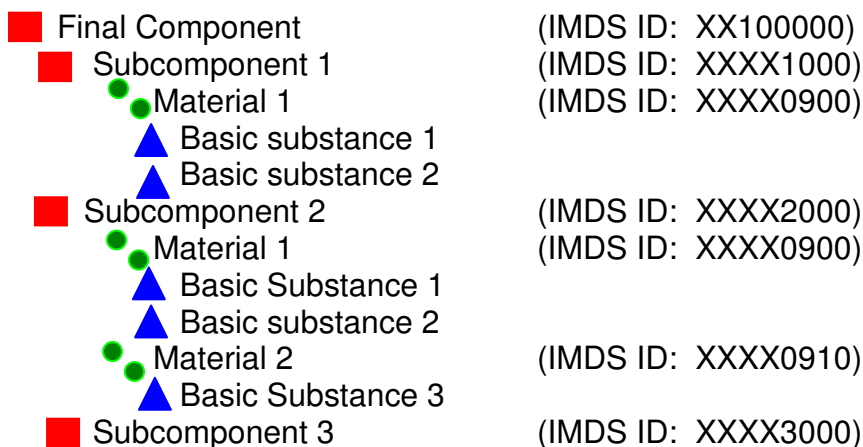| Material	Norm/Standard
Unfilled Thermoplastics:	ISO 1043-1
Filled Thermoplastics:	ISO 1043-2
Plasticizers:	ISO 1043-3
Flame Retardents	ISO 1043-4
Copper Allloys:	ASTM C10100 – 12000
Steel:	ASTM 1008 AKDQ
Etc…	

Material Numbers

The UNS (Unified Numbering System for Metals and Alloys) number assigned to the material is appropriate for entering in this location. Material numbers should not be confused with Norms/Standards. The UNS number cross correlates to norm/standard classifications such as ASTM, SAE, JIS, etc. UNS numbers are a letter followed by 4 or 5 numbers appropriate to the type of metal.

Axxxxx   Aluminum and Aluminum Alloys
Cxxxxx   Copper and Copper Alloys
Exxxxx   Rare Earth and Similar Metals and Alloys
Fxxxxx   Cast Irons
Gxxxxx   AISI and SAE Carbon and Alloy Steels
Hxxxxx   AISI and SAE H-Steels
Jxxxxx   Cast Steels (Except Tool Steels)
Kxxxxx   Miscellaneous Steels and Ferrous Alloys
Lxxxxx   Low Melting Metals and Alloys
Mxxxxx   Miscellaneous Nonferrous Metals and Alloys
Nxxxxx   Michel and Nickel Alloys
Pxxxxx   Precious Metals and Alloys
Rxxxxx   Reactive and Refractory Metals and Alloys
Sxxxxx   Heat and Corrosion Resistant Steels (Including Stainless), Valve Steels, and Iron-Base "Super alloys"
Txxxxx   Tool Steels, Wrought or Cast
Wxxxxx   Welding Filler Metals
Zxxxxx   Zinc and Zinc Alloys

<u>Tree Structure Development</u>

Earlier in this document it was suggested to break down the BOM into an outline format. Using this outline as a guide, each component, subcomponent and material should have an MDS assigned to it as in the example below and *each material and subcomponent is internally released within your company* for use in building the final component. A material used in two different subcomponents will have the same IMDS ID, but different percentage in the component where it is used.

■ Final Component   (IMDS ID: XX100000)
  ■ Subcomponent 1   (IMDS ID: XXXX1000)
    ● Material 1   (IMDS ID: XXXX0900)
      ▲ Basic substance 1
      ▲ Basic substance 2
  ■ Subcomponent 2   (IMDS ID: XXXX2000)
    ● Material 1   (IMDS ID: XXXX0900)
      ▲ Basic Substance 1
      ▲ Basic substance 2
    ● Material 2   (IMDS ID: XXXX0910)
      ▲ Basic Substance 3
  ■ Subcomponent 3   (IMDS ID: XXXX3000)

Material 3   (IMDS ID: XXXX0930)
   Basic Substance 5
          Basic Substance 6
          Basic Substance 7

ETC....

Using the outline of the BOM and keeping track of the IMDS numbers for each subcomponent and material will make the final step of creating the final component much easier. Each IMDS number being unique gives a one-to-one relationship for adding each subcomponent to the final component. Each subcomponent was internally released with the materials attached, and each material was internally released when created with its basic substances attached, so the materials do not have to be added to the tree, they flow in with the subcomponents.

Valid Structures

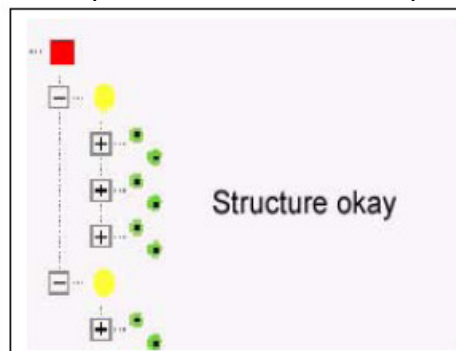A component can be made up of other components as illustrated here:
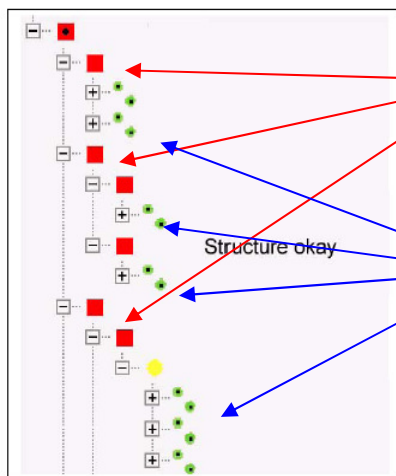
This structure follows the hierarchy:
- Component is made of components

- Each component at the second level is made of either components, semi-components or materials.
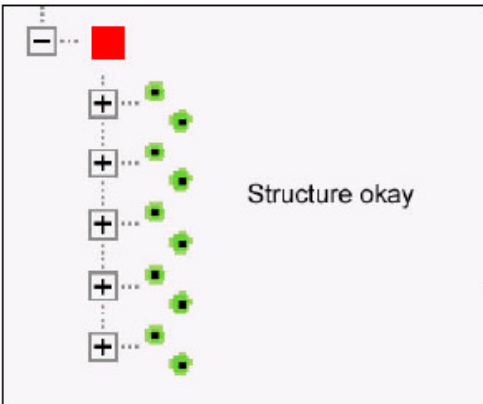
A component can be made up of semi-components:

This structure follows the hierarchy:
- Component is made of semi-components
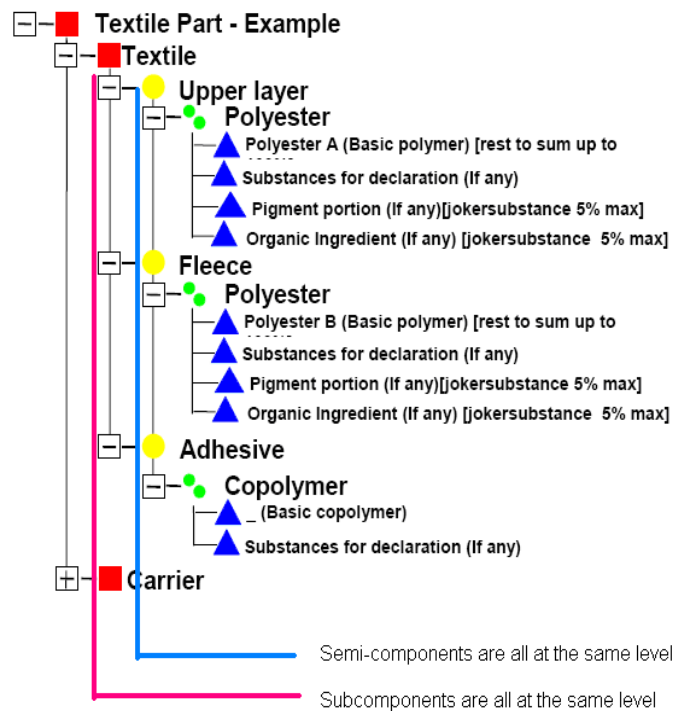- Each semi-component at the second level is made of materials.

Or a component can be made up of materials

This structure follows the hierarchy:

• Component is made of materials

Structure okay

As was mentioned earlier In the guidelines, the outline of the product content will be similar to what is valid in structure for the component and material content. **At each structural level, only one kind of element may be used.**

Textile Part - Example
Textile
Upper layer
Polyester
Polyester A (Basic polymer) [rest to sum up to
Substances for declaration (If any)
Pigment portion (If any)[jokersubstance 5% max]
Organic Ingredient (If any) [jokersubstance 5% max]
Fleece
Polyester
Polyester B (Basic polymer) [rest to sum up to
Substances for declaration (If any)
Pigment portion (If any)[jokersubstance 5% max]
Organic Ingredient (If any) [jokersubstance 5% max]
Adhesive
Copolymer
_ (Basic copolymer)
Substances for declaration (If any)
Carrier

Semi-components are all at the same level

Subcomponents are all at the same level

The above structure is an excellent example of a component composed of subcomponents that are composed of semi-components and their materials and basic substances. The Carrier in the second component can be composed of component(s), semi-component(s), or material(s) in the same manner as the Textile – it is all about hierarchy within each level and elements at the same level.

Invalid Structures
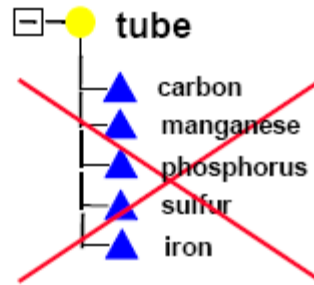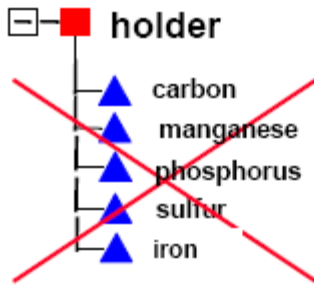
This structure is invalid because a component must be made of materials not basic substances. A material should have appeared in the tree between the component and the basic substances

In a semi-component, the same rule applies – a material should appear in the tree between the semi-component and the basic substances.
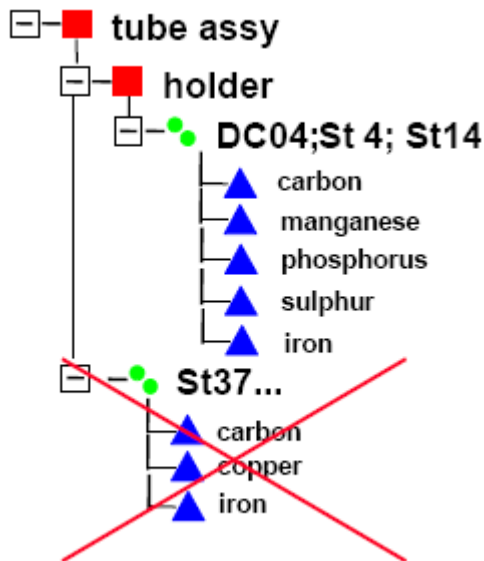
This structure is invalid because elements on the same level must be the same. An assembly is made of multiple components; this example should have had a second component composed of the St37 material. This would also have been invalid if a semi-component was on the same level as the component "holder"

MATERIAL NAMING CONVENTION

One hundred percent (100%) of the materials must be identified using either specific or generic material designations. Examples of acceptable generic material designations

can be found in IMDS Recommendation 001 General Structure. Additional generic designations for specific materials may be found in other IMDS Recommendations (ex. IMDS 006 Automotive Lubricants, IMDS 010 Plastic Material Compositions…).

While Nexteer Automotive does not have additional requirements for specific trade names or material numbers, norms/standards, where applicable, are required (metalics, thermoplastics, elastomers, and thermoplastic elastomers). IMDS has requirements for symbols for polymeric materials and some metal alloys. Nexteer Automotive asks that the material name for polymeric materials be reflective of the material symbol (i.e. PBT-GF30). Material classification is a required field in IMDS for all materials.

The creation of thermoplastics has undergone revision with the creation of IMDS Material 5.1.a Filled Thermoplastics and 5.1.b Unfilled Thermoplastics. When selecting either 5.1.a or 5.1.b thermoplastic classification, the system flows through a series of screens that help to populate the material name, symbol, and classification in the new MDS – this will include the material symbol, a filler if used, flame retardants if used, and plasticizers if used. It does not however include the norm/standard associated with the type plastic.

It is strongly recommended that IMDS Recommendation IMDS 010 for plastics be thoroughly reviewed. IMDS 010 gives the best information for plastic information for submissions.

In addition, polymeric parts marking questions will be asked for any materials in material classifications: 5.1, 5.1.a, 5.1.b, 5.3, and 5.4. A warning will be shown for any component using these materials which sum up to 25g. An error message will be created if these 5.1, 5.1.a, and/or 5.1.b are used in a component with a weight summing up to 100g or if materials with classification 5.3 is used in a component with weights summing up to 200g.

SUBSTANCE DECLARATIONS

Any Prohibited or Declarable Substance content as defined on the GADSL (Global Automotive Declarable Substance List), found at www.gadsl.org and 23000000 Appendix B, must be reported within your submission. It is critical that the usage or application is clearly recognizable in the part tree structure and appropriate application codes are assigned, as some applications of these substances are prohibited and others are currently exempt from regulation (e.g. lead in solder material as a part of an electronic assembly; is currently an exemption).

➢ All substances must be declared individually or under some conditions (see below) they may be aggregated into a "Misc." category, not to exceed 10%.

There is an additional application code page in an IMDS when a prohibited substance is used. If your material contains certain declarable or prohibited substances, even in an exempted category, this new page will be added to the MDS detail. The application code
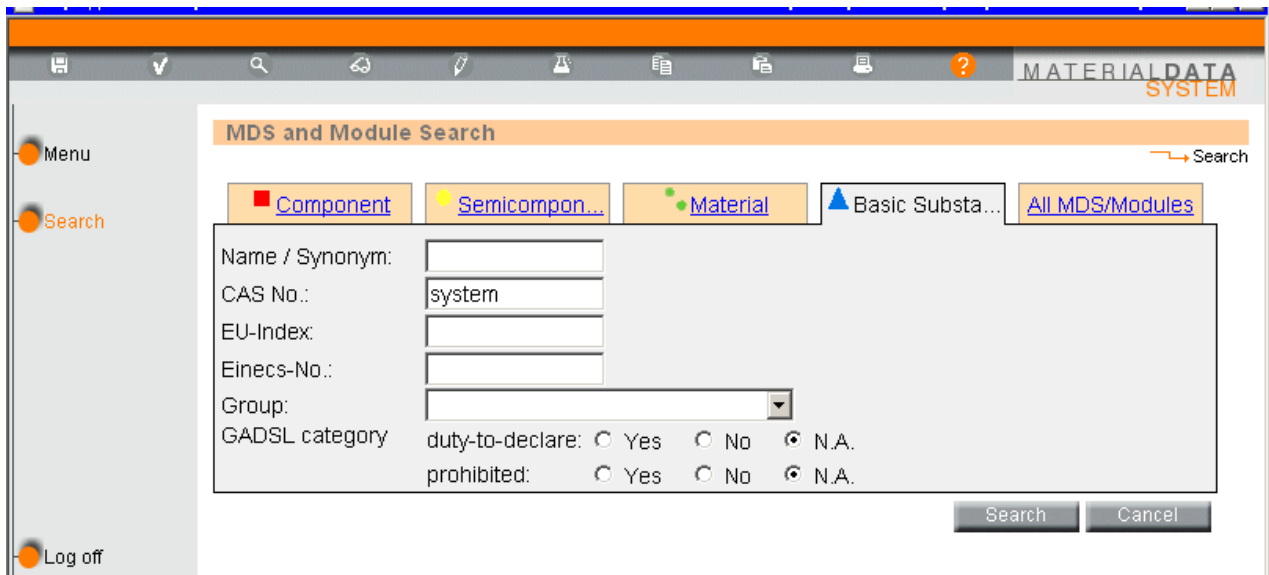
tab can be clicked on to open the page so the specific application can be chosen for the particular use of that material.

CONFIDENTIAL SUBSTANCES

Declarable substances cannot be confidential. Nexteer Automotive strongly discourages the use of confidential/proprietary substances within your submissions as the information can only be viewed by companies identified as "trust users" by your company. They are also limited to 10% in total in any material.

MISCELLANEOUS SUBSTANCES

The uses of generic and miscellaneous substance categories are acceptable.

IMDS Miscellaneous Substance Search

Miscellaneous substance categories are those that have a CAS number called "system" in IMDS and are sometimes referred to as "jokers" or "wildcards". The use of miscellaneous substance categories is limited to substances as they appear in IMDS Recommendation 001. Their use must be limited to 10% of the mass of the homogeneous material except for the inorganic ingredients. For the inorganic ingredients, such as mineral fillers in polymers, report the actual percent filler content.

IMDS Pseudo- Substance Search

Nexteer Automotive allows the use of generic or "pseudo-substances" (ex. GF-Fibre, cotton fibre, ABS) per the various IMDS recommendations. These are substances that do not have a CAS number identified in IMDS, and are found by entering a "-"(hyphen/dash) as the CAS number when searching for a basic substance. These pseudo-substances are accepted as basic substances and are not considered jokers or wildcards, therefore their use is not restricted by the 10% rule. IMDS Recommendation 010 for Plastic Material Composition describes the use of IMDS basic polymers and functional additives. Master batches and concentrates (basic polymers with colorants/pigments, flame retardants, etc…) uses are also detailed.

Generic and miscellaneous substances cannot be used to describe any prohibited or declarable substances per the GADSL or the SSSC 23000000 Appendix B.