IMDS Recommendation	IMDS 011

Nonmetallic Coatings

(mono- and multi-layer systems)

1 Purpose

This recommendation outlines the general requirements for the creation of Material Data Sheets (MDS) describing painted components. It shall be used to report complete paint systems like multi-layer vehicle surface coatings, also to describe mono coats (single paint layers) as they are being used for component painting.

For metallic coatings (electroplate/electroless) see References IMDS 007and 008.

A paint normally consists of different layers (e.g. phosphate pretreatment, electrocoat, primer, basecoat, clearcoat). Each layer must be described separately. The IMDS Material Datasheet is requiring information on the product composition in the cured state (after heat treatment, drying, curing, hardening process). Consequently solvents as contained in the liquid paint must not be reported, as they are no longer present in the cured material.
In the case of two-component coatings, please do not report two materials (base resin + hardener, components A and B), but only one material (cured end state, reaction product).

2 References

IMDS 001, IMDS 007, IMDS 008, GADSL

3 Definitions

For the users' convenience, a big variety of standard cured resins (Compound of a polymeric network) are listed in the IMDS Basic Substance List as 'Basic Duromer' pseudo-substances.
You will find more than one hundred of them (lookup *basic duromer* in the substance search).
Please preferably use these pseudo-substances when you create the material entry for your resin system and add pigments and all other additives with their respective percentage.

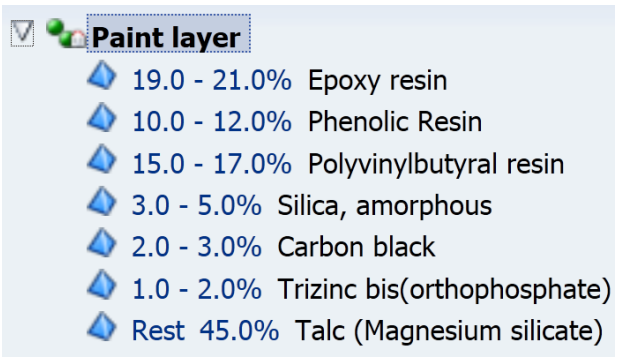
Name	Synonym
Acaroid Resin	Basic Duromer: Acaroid Resin
Acrylate Urethane Oligomer	Basic Duromer: Acrylate Urethane Oligomer resin (polymeric network)
Acrylated Epoxy Resin	Basic Duromer: Epoxy resin (Compound of a polymeric network)
Acrylic polyol resin	Basic Duromer: Acrylic polyol resin (Compound of a polymeric network)
Acrylic resin	Basic Duromer: Acrylic resin (Compound of a polymeric network)
Acrylicphenolic Resin	Basic Duromer: Acrylicphenolic resin (Compound of a polymeric network)
Aliphatic polyesterurethane triacrylat...	Basic Duromer: Aliphatic polyesterurethane triacrylate resin
Alkyd resin	Basic Duromer: Alkyd resin (Compound of a polymeric network)
Alkylphenolic resin	Basic Duromer: Alcylphenolic resin (Compound of polymeric network)
Amine modified epoxy isocyanate re...	Basic Duromer: Amine modified epoxy isocyanate resin
Amine modified epoxy resin	Basic Duromer: Amine modified epoxy resin
Anionic polyurethane resin	Basic Duromer: Anionic polyurethane resin (polymeric network)
Bismaleimide resin	Basic Duromer: Bismaleimide resin (Compound of a polymeric network)
Bismaleimide-Triazine resin	Basic Duromer: Bismaleimide resin (Compound of a polymeric network)
Bisphenol A resin	Basic Duromer: Bisphenol A resin (Compound of polymeric network)
Brominated epoxy resin	Basic Duromer: Brominated epoxy (Compound of polymeric network)
Butyl titanate	Basic Duromer:Butyl titanate (Compound of polymeric network)
Carboxy Terminated Polyester resin	Basic Duromer: Carboxy Terminated Polyester resin (Compound of a poly
Carboxyl Functional Polyester resin	Basic Duromer: Carboxyl Functional Polyester resin (Compound of a polyr
Cellulose Acetate Butyrate resin	Basic Duromer: Cellulose Acetate Butyrate resin (Polymeric network)
Coplymer of Acrylic, Polyester, and P...	Basic Duromer: Coplymer of Acrylic, Polyester, and Polyurethane Resin

3.1 Mono Coat (single-layer paint)

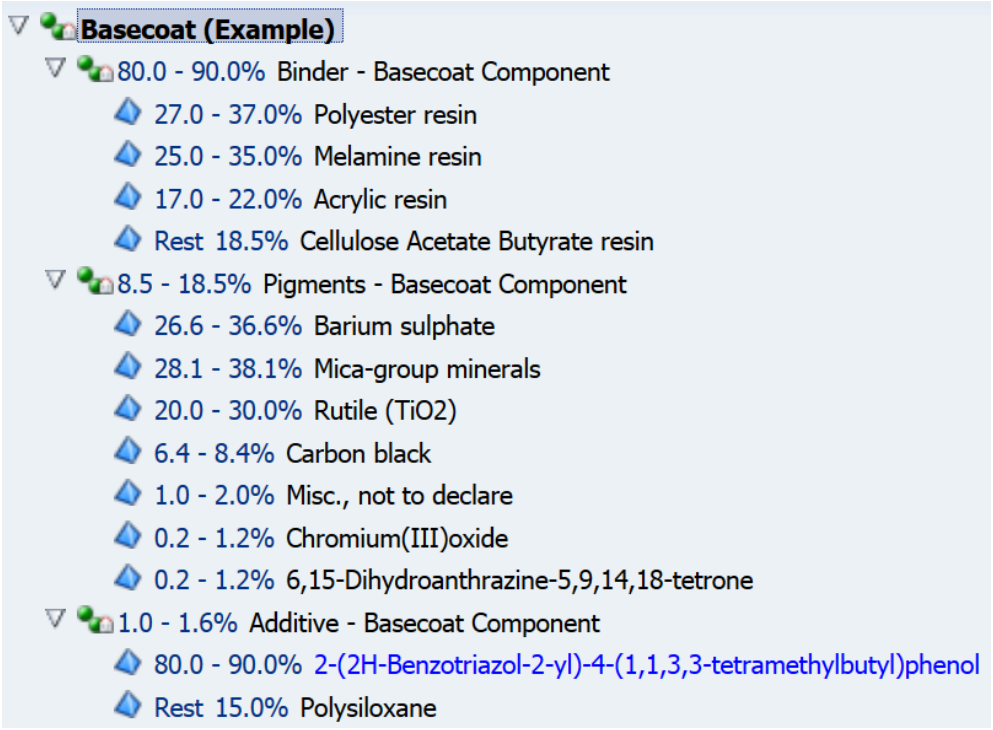
This paint type consists of one layer of a simple resin-hardener system (e.g. Melamine) or a multi resin system (e.g. Acrylic-Polyester-Melamine), both with fillers (e.g. talc), pigments (e.g. carbon black, rutile) and further additives, which are intentionally introduced. It must be described as a material or a composed material.

Examples of a single-layer paint:

As single material:

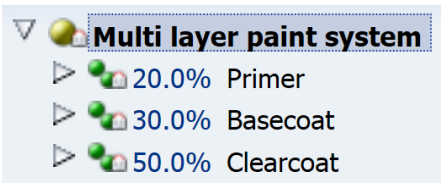


Or as composed material according to REC001, 4.4.1:



3.2 Paint System (multi-layer paint)

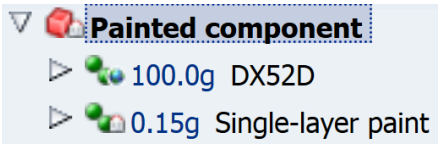
A complex Paint System (multi-layer paint) consists of individual paint layers. Each of them must be described as a separate material (see section 3.1).
A paint system could e.g. consist of three materials: Primer, Basecoat, and Clearcoat.



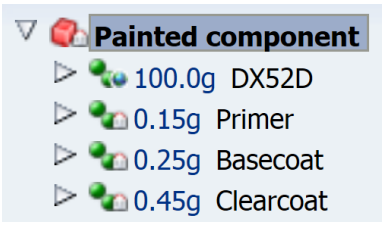
3.3 Painted component

Together with the base material they are applied on, paints can be listed as part of a component.

For a component with Single-layer paint:



For a component with multi-layer paint:



3.4 Phosphate coatings (phosphate pretreatment)

Phosphate coatings, often used as pretreatment before painting metallic components, are available in IMDS as standard materials. You can select them by a Material Search, searching for "*phosphate coating" as material name and "IMDS-Committee" as supplier.

Type	Name	ID / Version	Supplier
	Iron phosphate coating	7029554 / 4	IMDS-Committee
	Manganese phosphate coating	9502076 / 4	IMDS-Committee
	Manganese phosphate coating (Ni-content)	7031907 / 5	IMDS-Committee
	Zinc calcium phosphate coating	7027255 / 5	IMDS-Committee
	Zinc phosphate coating	7026761 / 5	IMDS-Committee
	Zinc phosphate coating Mn/Ni-content	9501829 / 6	IMDS-Committee
	Zinc phosphate coating Ni-content	9501801 / 4	IMDS-Committee
	Zinc phosphate coating, Mn-content	9501722 / 5	IMDS-Committee
	Zink calcium phosphate coating (Ni-content)	9501938 / 5	IMDS-Committee

4 Release and Revisions

4.1 Release

The recommendation was initially approved and released on February 19th 2003.

4.2 Revision

Rev.	Date	Description / Reason	Originating Organization / Committee
01	30.10.03	Editorial review, examples added	IMDS SC
02	01.02.05	Phosphate coatings as standard materials added	IMDS-SC
03	01.10.06	Update of presentation in chapter 4.1	IMDS-SC
04	31.10.06	Update of ranges in chapter 3.1	IMDS-SC
05	16.03.07	Update of ppt presentation and range table (just the form, not the ranges)	IMDS-SC
06	06.12.19	Extensive editorial review	IMDS SC