

Information on Substances and Materials in Passive Components

**PART A: Umbrella Specs
Guidelines and Data Format**

**PART B: Example of a completed
Umbrella Specification**

Information on Substances and Materials in Passive Components

Part A: Umbrella Specs - Guideline and Form (ZVEI)

A 1. Preliminary remarks

Statutory provisions and also independent declarations of commitment by the industry have resulted in the current spate of inquiries from customers to their suppliers in respect of the composition of products, and in particular in respect of the type and location of substances and materials.

Without standardization, efforts to reduce capital expenditure to a reasonable level on both the customer side and the supplier side will not be successful.

A 2. Scope

The purpose of this proposal is to standardize responses by suppliers to their customers in respect of the composition of products, and in particular in respect of the type and location of substances and materials.

This also includes a form which has been standardized to the maximum possible extent, an explanation of how this form is structured, and instructions on what content should be entered on the form, and how.

Product packaging is not regarded as part of a product.

A 3. Definitions, abbreviations, references

GADSL	see "... restrictions on substances ..." within GADSL list Global Automotive Declarable Substance List (see www.gadsl.org)
CAS No.	Abbreviation for Chemical Abstracts Service Registry Number.
typical mass of material	specifies the materials in terms of weight percentage relative to a part / component.
typical mass percentage of substance (TMPS)	specifies the composition part (ingredient) etc. in terms of weight percentage relative to a material.
Material, substance,	see IEC PAS 61906 (section 3.) / Joint Industry Guide
Normative references	see IEC PAS 61906
Product part , sub part	subunit(s) of a product IEC 61346-1: "subdivision of the product into constituent objects" without necessarily taking into account functions.
Product Classes	<i>definition according IEC PAS 61906</i> <i>Explanation: Electronic components, e.g. passive components, have the most spreading functions and application areas. Nonetheless, these components can be grouped into classes". These classes are then similar in terms of the type of their constituent substances and materials, and in their composition within a certain range.</i>

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Product	result of labour or of a natural or industrial process [IEC 61360-1] NOTE 1 This general definition of <i>product</i> in the context of the IEC PAS 16906 is limited to any <i>product</i> of the product category "hardware" according to ISO 9000:2000 No. 3.4.2 of and for the electro- and electronic industry (E&E). NOTE 2 In the context of the IEC PAS 16906 the definition of <i>product</i> corresponds to the term "article" in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
Traces	are substances with an average mass percentage per material less than 0.1 wt-%; where more tight statutory regulations exist defining upper limits, traces are the values that fall below this limit.
Umbrella specification (abbreviated: Uspec)	Denotes a completed data format that conforms to the IEC PAS 61906 and provides the typical relative material composition of a product class
Weight range	Specifies the greatest and smallest weight in a product class or the size and weight of typical representatives of the product class

A 4. Requirements relating to recording of substances and materials in the U'spec

- Preferred language for entries is English. Established terms in English are not translated.
- Chemical substance names should be according IUPAC nomenclature. CAS No is mandatory if available.
- This format can be used for material information of a specific product as well as for a or specific product class
- Specified percentages of substances / materials in products must add up to 100%. Traces of declarable or prohibited substances are indicated in the column "Traces", e.g. by "x"
- IMDS Identification (if available)
- Materials are recorded with it's classification
- Substances and materials are recorded with typical values (i.e. average values determined by the respective product class of one or more different producers)
- Declarable or prohibited substances are based on the GADSL: <http://www.gadsl.org>

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Part A: Umbrella Specs - Guideline and Form (ZVEI)

I <PRODUCT CLASS>

II	Product Class:	<Name of Product class>	Company	Product Class Identification
III	Date:	<Date>	<Company 1>	<Product Class Descriptor 1, Product Class Descriptor 2.. >
IV	IMDS ID		(Rem: in case of multi company material information : <Company 2> <Company 3> <Company 4> <.....> <Company N>	<Product Class Descriptor 1, Product Class Descriptor 2.. > <Product Class Descriptor 1, Product Class Descriptor 2.. >
V	Version:	<Version>		

	A	B	C	D	E	F	G	I
1	Product part (IMDS: semi component Halbzeug)	Material (IMDS Material / Werkstoff)	Material (Classification) ISO 22628 / VDA 231 or EESG	Substance	TMPS** [wt%]	CAS if applicable	typical mass of material [wt-%]	Traces see 2)
2	Active Part	<e.g. Metal>						
3a	Termination							
3b								
3c								
3d								
3e								
3f								
4	Sum in total:							

S5 Case sizes and weight range: [g]

S6 Not part of a product class (oder) group

S7	Company	<Company 1 Address	Disclaimer 1) 2)
		<Company 2 Address.....>	
		<Company 3 Address.....>	
		
**) typical mass percentage of substance			

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A 5. Instructions on filling out the forms “Product Content Sheet” and “Package Weight List”

- General **Column/row references (I,II, III, IV ... 1, 2,..A, B, ...):**
Should be deleted at an USpec.
- I, II **Cell - Product Class**
A typical entry for passive components: e.g. Ceramic Capacitors MLCC
It is recommended to describe this product class in a commonly understandable way.
Cell - **Company:** company name and product class descriptors (multiple company input possible)
- III, IV, V **Cell - Date** , **Cell IMDS ID** (if available), **Cell - Version:**
- 1, 2, **Product part and subparts** may be defined.
- 3A ... **Remark:** subparts may not necessarily be parts, which can be dismantled
It is more an aid for the user to determine the location of an homogeneous material within the component
- B1- **Column – Material (function)**
General Material Classes should be defined (e.g. according IMDS, or IEC Specification of TC 111 WG1, to be published)
- C1 - ... **Column – Materials (classification)**
classification according ISO 22628 / VDA 231 or IEC Specification of TC 111 WG1, to be published
- D1 - ... **Column - Substances**
Substances should be named according IMDS Substances list or UPAC nomenclature
- E1 - ... **Column - TPML typical mass percentage of substance.**
Composition is given on a substance level based on column C [wt%] (e.g. SnCu alloy)
- F1 - ... **Column CAS (Chemical Abstract Services Registration Number)**
CAS No's. are entered here **only if the relevant** number **actually exists**. Please enter “-“ if CAS no. doesn't exist.
- Please note:**
*CAS numbers do not exist for each material, substance etc. world wide.
Sometimes it might be necessary to break down compounds, mixtures etc. into their constituent elements and then specify the CAS No. for these, (e.g. Ceramic materials), but one must be aware that is an artificial approach and does not correspond to the existing compound and it's stoichiometry. E.g. Ferrite is a spinell with a rough composition $(FeO, MnO, ZnO)_x (Fe_2O_3)_y$; instead an information based on analytical descriptors the composition may given as 70% Fe₂O₃, 25% MnO, 5% ZnO.*
- G1 - ...- **Column – Typical composition**
... The composition of a product class given in typical values as weight %. Absolute values can be calculated together with the case size and weight range table (Section 5)
- H1 - ... **Column – Sum:**
This number is the sum of the percentage values given in the previous column **Average mass** and indicates the percentage of the respective composition part in the component or in the package family.
- I1 - ... **Column – Traces:**
The relevant rows are marked in this column, e.g. with x or ✓, to indicate traces that are known to the supplier, e.g. from the safety data sheet for the source material, and that have been intentionally introduced into the product and may represent significant risks to human beings and the environment if not properly used, e.g. substances that then have a toxic, very toxic, carcinogenic, mutagenic or reprotoxic effect.
- S5 **Case sizes Weight range/... - .../ Weight range:**
representatives of the product class are given (or even product lists) and typical weight is provided in the usual notation, e.g. [g] for weight in grams
- S6 Parts/Components not part of the respective product class
- S7 responsible person company /-ies

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A 6. Concluding remarks

Only manufacturers or suppliers can confirm compliance of their products with material information like this umbrella spec.

Umbrella Specification (Revision 2)
Product Content Sheet and Weight List
Part B: Examples for Passive Components

Example of completed Umbrella Specifications

The details specified in the examples have been chosen arbitrarily. They are not subject to a change service. Liability claims are therefore excluded.

The corresponding package weight lists covers just one Umbrella Specification.

Content:

Passive components: Umbrella Spec **MLCC**
for more examples see www.zvei.org

Umbrella Specification (Revision 2)
Product Content Sheet and Weight List
Part B: Examples for Passive Components

CERAMIC CAPACITORS (EXAMPLE/ DRAFT)

Product Class:	Ceramic Capacitor MLCC	Company Company 1	Product Class Identification EJC*****
Date	01.01.07	(Rem: in case of multi company material information :	
IMDS ID	12345678/1	Company 2	*MK063, *MK105, *MK107, *MK212
Version	Alpha	Company 3	SMD NP0, X7R, Y5V
		Company 4	B37XXX)

Product part (IMDS: semi component Halbzeug)	Material (IMDS Material / Werkstoff)	Material (Classification) ISO 22628 / VDA 231 or EESG	Substance	TMPS** [wt%]	CAS if applicable	typical mass of material [wt-%]	Traces see 2)
Active Part	Ceramic	4B	Ba-titanates Bi-titanates Pb-titanates others*):	86 7 5 2	12047-27-7 12010-77-4 12060-00-3	86	
Termination	Metal	1D	Ag	70	7440-22-4	4	
	Metal	1D	Pd	30	7440-05-5		
	Metal	1D	Ag	100	7440-22-4	3	
	Metal	1C	Ni	100	7440-02-0	4	
	Metal	1B	Sn	100	7440-31-5	3	
	Metal	1C	Pb		7439-92-1		X
Sum in total:						100	

Case sizes and weight range:	0201	0,6 x 0,3 x 0,3mm	0,00017..0,00029	[g]
	0402	1,0 x 0,5 x 0,5mm	0,0014	
	0603	1,6 x 0,8 x 0,8mm	0,006	
	0805	2,0 x 1,25 x 1,3mm	0,012..0,019	
	1206	3,2 x 1,6 x 1,6mm	0,027..0,050	
	1210	3,2 x 3,2 x 1,6mm	0,05..0,12	
	1812	4,5 x 3,2 x 2,5mm	0,09..0,22	
	2220	5,7 x 5,0 x 2,5mm	0,21..0,45	
Not part of a product class (oder) group				

Company	Company 1 Address	Important remarks: Disclaimer
	(Company 2 Address	
	Company 3 Address	
	Company 4 Address)	
<p>*) others: not declarable or prohibited substances acc. GADSL **) typical mass percentage of substance</p>		