Specification BMEcat® 2005

Module Price Formulas

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Expression of thanks

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1 Introduction

1.1 Overview

The BMEcat® format has been developed with the purpose of standardizing the exchange of product catalogs between suppliers and purchasing companies and thus simplifying it. In the underlying model the supplier creates a catalog in electronic form corresponding to the BMEcat® standard. In the following this catalog will be named catalog document. The catalog document enables additionally the integration of multimedia product data, for example illustrations, charts, technical documents, operating instructions etc.

BMEcat® supports multilingual catalog content as well as multiple languages. The BMEcat® format is not limited to tangible products, but can also be used for the description of software, services, rights, information goods, digital products etc. Therefore, in the following the term 'product' respectively 'product catalog' will be expanded to all kinds of commercial goods as far as they are suitable for being represented in a catalog.

Typically the supplier transmits the BMEcat® catalog document to a purchasing organization that processes the contents of the catalog document and, for example, imports it into an e-procurement or catalog management system. This procedure is called catalog data exchange. The BMEcat® format does not only enable the supplier the transfer of the complete product data, but also for example the update of price data or individual products.

BMEcat® catalog documents, however, are not limited to the mere use for transmission to purchasing companies. Rather they are suitable just the same for the update of on-line shops administered by the suppliers, for sales support, for the supply of electronic market places, and quite generally for the transmission of product data - either externally between different companies or internally within a single company.

The use of BMEcat® represents an important step on the way to standardized business-to-business e-commerce. Companies which place BMEcat® catalogs at their customers' disposal or are able to process their suppliers' BMEcat® catalogs, are complying with an important requirement for electronic business transactions, the participation in new trading platforms and the automation of their sales respectively procurement processes. Additionally to BMEcat®, openTRANS (see **www.opentrans.org**), a transaction standard based on BMEcat® can be employed for the data exchange within the context of order processing.

BMEcat® is being developed unter the umbrella of the Bundesverband Materialwirtschaft, Einkauf und Logistik e.V. (BME), which is the German Association of Purchasing Managers. The BME is a service provider for its about 6,000 members, which represent more than 80 percent of the purchasing volume of the German industry (about 700 Billion Euros). More information on the BMEcat® organization and possibilites to contribute to the standard is available at **www.bmecat.org** .

1.2 Application of XML

BMEcat® catalog documents are coded in XML, the "eXtensible Markup Language". XML is the de-facto standard for data exchange in the internet and is being developed by the World Wide Web Consortium (see **http://www.w3.org/XML**). XML enables the simultaneous codification of structures and data in a catalog document as opposed to, for instance, conventional, less efficient formats like MS Excel files or comma-separated value lists (CSV files). The structure of BMEcat® catalog documents is formally very exactly described by use of the language XML Schema (XSDL); this formal specification is published in an accompanying separate document in the form of XSD files and can be accessed via the website **www.bmecat.org**.

1.3 Supplementary activities and standards

BMEcat® standardizes the exchange of electronic product catalogs. Another, though supplementing area of standardization concerns the classification and description of products (and services). For this purpose, product classes and classification hierarchies are being defined for various applications and branches of industry. In addition, the standardized description of products is enabled by product features assigned to the classes. Both are subject of product classification systems such as eCl@ss, ETIM, profiCl@ss, and UNSPSC. The BMEcat® standard is not committed to any one of these classification systems and does not in any case recommend any specific BMEcat® classifications. Rather the BMEcat® standard is conceived in such a way that almost all classification systems known at present can be used for the classification and description of products in BMEcat® catalogs.

1.4 Implementation support

The BMEcat® standard is meanwhile being supported by numerous software providers and systems. In particular, this applies to e-procurement systems, sell-side shop systems, electronic market places, service providers taking care of content supply and content maintenance as well as product data and catalog management systems. BMEcat® catalogs can be created and processed with the help of these systems. In addition, special software tools for the production and evaluation of BMEcat® catalogs as well as the conversion of data into the BMEcat® format are offered. For supplementary information, please refer to **www.bmecat.org**.

The BMEnet GmbH (daughter of BME) offers the certification of BMEcat® catalogs. Target group for the certification are suppliers who receive a test seal for their catalog. Thus they can prove that their catalog fulfills the BMEcat® standard up to 100 %; this information is helpful for customers, operators of procurement portals, market places, electronic procurement systems, and clearing centres. With the presentation of the certified catalogs in the BME portal and the on-line position of the certified catalogs, an efficient research tool for the purchase is provided, and thus a target group-specific marketing and sales platform for the suppliers. For further information please refer to **www.bmenet.de**.

1.5 Website www.bmecat.org

Inter alia, the following information is provided in German and English on the website www.bmecat.org:

- Download of the specification in different formats
- Download of the specification in form of XML DTD and XML Schema
- Download of example catalogs

Error messages and change messages as well as known errors respectively their corrections can be accessed via the website.

Furthermore, also information about the participation in the BMEcat® development via the BMEcat® change forum can be found.

2 Specification

2.1 Specification structure

The BMEcat® format is described in detail in a total by five documents. These are:

- Specification BMEcat ®
- Specification BMEcat ® - Module Price Formulas
- Specification BMEcat ® - Module Integrated Procurement Point
- Specification BMEcat ® - Module Product Configuration
- Specification BMEcat ® - Module Classification Systems, Catalog Groups Systems, and Feature Systems

In the module specifications, functions and data areas are described that can be used optionally in each case. For the facilitation of the handling, these have been stored outside in separate partial specifications which are needed only in case the extended functions are used. Wherever necessary in the specification, the module specifications are referred to. The module specifications have been arranged in such a way that they describe a range exclusively within themselves, without having to fall back upon the other modules. This signifies that the module specifications are not non-overlapping. There are for example also formula specifications in the module product configuration, since formulas take care of both the price calculation as well as the calculation of feature values in the course of the configuration.

The detailed specification is supplemented by the technical specification in the form of XSD files as well as example files of BMEcat catalogs®.

In order to facilitate the navigation within the specification documents, relevant key terms (e.g., element names) with cross references are provided that allow the direct jump to the respective place in the document. The cross references are clearly marked in green letters.

References to external resources in the World Wide Web are likewise available (e.g., for definitions of standardized data types) and are shown as blue hyperlinks to enable the direct jump to the relating website.

The **reference of elements** is the main part of the specification. Herein, all elements are defined in the order

they can appear in a BMEcat® catalog document. The **alphabetical index of BMEcat® elements** allows the quick jump to individual elements. This index as well as the **table of contents** is made of cross references with immediate hyperlinks to the elements.

The appendix is subdivided into three areas: The list of data types describes in detail all data types defined in BMEcat®(i.e., base data types, enumeration data types, and special data types). The change history gives an overview in alphabetical order of the elements changed in BMEcat® 2005. Last but not least, there are two additional lists of all BMEcat® elements (illustration of the document hierarchy, and a-z list).

2.2 Description of elements

Each element is described according to the same scheme. The description is structured as follows:

- the **designation: descriptive element name**,
- the **element name** for the use in XML documents,
- the **explanation** describes the function respectively meaning of the element,
- a chart for the visualization of the sub elements of the element as well as the structural context:

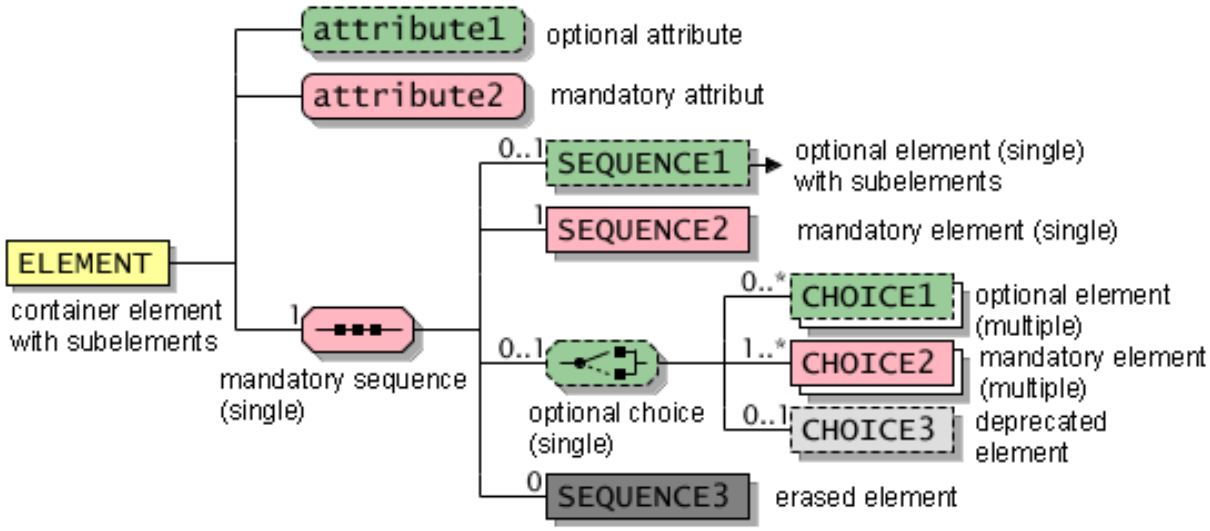
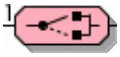
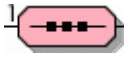


Figure 2-1: Visualization of elements and sub elements

The described element always appears on the left side and is yellow (light); the sub elements appear on the right side one beneath the other; the elements have angular edges, XML attributes have round edges; if a sub element is red (respectively dark), it is a mandatory field; if it is green (respectively light), then it is optionally usable (optional field, also refer to section **mandatory and optional fields**); elements omitted in the next BMEcat® version are light grey, elements that are already no longer permitted in the current version are dark grey; the symbols and abbreviations connected with the elements have the following meaning:

- **"0...1"** as well as a dotted border indicate an optional element that can appear, but does not have to appear;
- **"1"** as well as a continuous border indicate an element that has to appear exactly once in this place;
- **"0...*x*"** as well as a dotted border indicate that the element can appear *x* times in this place, but it is not required to appear; an "*" (asterisk) stands for an infinite number of appearances;
- **"1...*x*"** as well as a continuous border indicate that the element can appear *x* times in this place, however, it has to appear at least once, an "*" (asterisk) stands for an infinite number of appearances;
- the -symbol indicates that the element can have at least one sub element; if this character is missing, it refers to a leaf element, i.e. a data type has to be indicated in this case.
- the  -symbol indicates that exactly one of the following elements has to appear;
- the  -symbol indicates that the following elements can appear in the given order; mandatory elements have to, optional elements can appear;

- the **table "general"** describes briefly the following characteristics of the element: the column "Used in" demonstrates in which superior elements the respective element can be used; the column "Default value" indicates which value is assigned, if the element is not existing (also refer to section **mandatory**

and optional fields); the column “Data type“ indicates the domain of values for the element (if it has no sub elements); the column “Field length” indicates the maximal number of characters that can be assigned to the element (also refer to **symbol codification in XML**); the column "Lang.specific" indicates whether the field contents is dependendt on the language; the column “l.chg. in ver.” indicates the BMEcat® version in which the element has been changed last,

- the **table "attributes“** lists the attributes used in the element: the column "Designation" contains the name describing the attribute, if possible, in one single word; the column “Attribute name“ indicates the XML attribute; the column “Mandatory/optional“ indicates, whether the attribute is mandatory or optional (also refer to section **mandatory and optional fields**); the column “Explanation" describes the use of the attribute; the columns "Default value", "Data type", "Field length", "Lang.specific", and "L.chg. in ver." are used like in table "general"; rows with light grey background indicate attributes that will be omitted in the next BMEcat® version; attributes that are already no longer permitted in the current version are further listed for the sake of completeness, however, the respective row has a dark grey background,
- if it is further specified how values are to be assigned to an attribute, for each attribute a **table with a list of values** can follow; thereby it is to be differentiated whether the list containes predefined values (i.e., these values are suggested, but also other values can be used in accordance with the description of the attribute), or whether the list contains all permitted values (i.e., only values from this list, no others may be used); the column "Attribute value" indicates the values which can or which have to be assigned to the attribute; the columns "Designation", "Explanation", and "l.chg. in ver." are used like in table "Attributes",
- in the **table "elements"** the sub elements of the respective element are listed in their order; the sub elements are described by the following columns: the column "Element name" contains the notation which has to be used in the XML document; if the sub element itself has no more sub elements, in this column the attributes of the sub element are listed additionally; the columns "Designation", "Mandatory/optional", "Default value", "Data type", "Field length", "Lang.specific", and "l.chg. in ver." are used like in the table "Attributes" respectively "General"; rows with light grey background indicate elements, which are omitted in the next BMEcat® versions; attributes which are already no longer permitted in the current BMEcat® version are further listed for the sake of completeness, however, the respective row has a dark grey background,
- an **example** complements the element specification; in these examples, all BMEcat® elements are black and its values as well as attribute values are blue.

The XML examples show the BMEcat® application on the basis of cut-outs from a catalog document. Partly because of space restrictions, the more complex elements are not shown with their complete contents, but only schematically by opening and closing tags, e.g., `<BUYER>...</BUYER>` .

In the describing texts the following symbols are used for giving important information:

Symbol	Meaning
	Attention: reference to possible source of error
	Note: describing note containing additional information
	New from BMEcat® 1.2 to BMEcat® 2005 final draft

Figure 2-1: Symbols in the BMEcat® specification

2.3 Mandatory and optional fields

The BMEcat® format makes a distinction between mandatory und optional fields. Mandatory fields are XML elements that have to appear in an XML file adhering to BMEcat® within the encompassing context. Optional fields are XML elements that can appear in an XML file adhering to BMEcat® within its context. Optional fields in the tables of this specification are green (respectively light), and mandatory fields are red (respectively dark).

A catalog document is adhering to the BMEcat® format, if it contains all mandatory fields, and no other than the optional fields defined in the specification are used in the given order and with the specified cardinality.

For example, in BMEcat® the short description **DESCRIPTION_SHORT** of a product is a mandatory field within the context **PRODUCT_DETAILS**, whereas the long description **DESCRIPTION_LONG** is an optional field in the same context.

Therefore, if the parent element **PRODUCT_DETAILS** appears in a catalog document, the element **DESCRIPTION_SHORT** has to be existing and must not be empty, whereas the element **DESCRIPTION_LONG** can follow **DESCRIPTION_SHORT**. The next examples illustrate this requirement.

Example 1: Short description only (mandatory field):

```
<PRODUCT_DETAILS>
    <DESCRIPTION_SHORT>File</DESCRIPTION_SHORT>
</PRODUCT_DETAILS>
```

Example 2: Not permitted - Empty short description (mandatory field):

```
<PRODUCT_DETAILS>
    <DESCRIPTION_SHORT></DESCRIPTION_SHORT>
</PRODUCT_DETAILS>
```

Example 3: Short description (mandatory field) and long description (optional field)

```
<PRODUCT_DETAILS>
    <DESCRIPTION_SHORT>File</DESCRIPTION_SHORT>
    <DESCRIPTION_LONG>This file is made of very solid material.</DESCRIPTION_LONG>
</PRODUCT_DETAILS>
```

Determining whether an element has to be used in its context can be resolved by parsing from the outside to the inside. The following example is to illustrate this: The element for skeleton agreement information **AGREEMENT** is an optional field in the context of **HEADER**. Thus, information on skeleton agreements can be stored in the catalog header, though it is not required to provide this information at all. If the decision is made, however, to use the element **AGREEMENT**, in this element the sub elements **AGREEMENT_ID** for the contract number and **DATETIME** have to be indicated for the end date of the contract, since both elements are mandatory in the context of **AGREEMENT**.

The two following examples illustrate this fact.

Example 4 (HEADER without skeleton agreement information):

```
<HEADER>
    <CATALOG>...</CATALOG>
    <BUYER>...</BUYER>
    <SUPPLIER>...</SUPPLIER>
</HEADER>
```

Example 5 (HEADER with skeleton agreement information):

```
<HEADER>
    <CATALOG>...</CATALOG>
    <BUYER>...</BUYER>
    <!-- Here AGREEMENT can be indicated (optional field) -->
    <AGREEMENT>
        <!-- Here AGREEMENT_ID has to be indicated (mandatory field) -->
        <AGREEMENT_ID>21312</AGREEMENT_ID>
        <!-- Here DATETIME (or AGREEMENT_END_DATE) has to be indicated (mandatory field) -->
        <DATETIME type="agreement_end_date">
            <!-- Here DATE has to be indicated (mandatory field) -->
            <DATE>2002-05-31</DATE>
        </DATETIME>
        <!-- Here AGREEMENT_DESCR could be indicated (optional field) -->
    </AGREEMENT>
    <SUPPLIER>...</SUPPLIER>
</HEADER>
```

2.4 Data types

Data types determine the format and the range of values for the elements defined in BMEcat®. Exactly one data type is assigned to each atomic element. The use of data types enables a detailed description of the way how to use an element correctly.

In the BMEcat® format a distinction is made between basic data types, enumeration data types, and special data types.

The **basic data types** define current and frequently used data formats, e.g., character strings, integers, yes/no values etc. Refer to the **Table of basic data types** in the appendix.

Furthermore, **enumeration data types** are used that are based on international standards. An enumeration data type is defined by a set of permissible values being character strings. If an enumeration data type is assigned to an element, then this element can only take on a value from the set of the permissible values. All enumeration data types are indicated in the **table of enumeration data types**.

In the **table of special data types** in the appendix some **special data types** with dedicated functions can be found. For the time being these data types are empty in BMEcat®, thus defined without contents and do not have to be taken further into account by the user. Only in the case of the user specific or module based extension of the BMEcat® format, these data types are defined and concretized anew.

2.5 Character codification in XML

The codification of the individual characters in the XML elements should be indicated in each BMEcat® file. This takes place in the attribute "encoding" of the XML text declaration, e.g., `<?xml version="1.0" encoding="UTF-8"?>` .

BMEcat® supports all sets of characters mentioned in the XML specification (i.e., ISO-8859-1, UTF-8, and UTF-16). Concerning the UTF sets, each character is usually stored in one or more bytes.

It is important to note that the field length in the column "Field length" refers to the individual character and not to the number of bytes used by the set of characters. For example the "Ü" codified as "Ü" represents a single character.

Concerning this, also refer to **Chapter: Multilingual catalog documents**.

2.6 Version history

Version	Date	Description
1.0	1999-11-08	First version
1.01	2000-01-02	Elimination of individual inconsistencies and revision of the examples
1.2 final draft	2000-12-19	Error corrections, smaller extensions and a general improvement of the documentation
1.2	2001-03-27	Translation of the feedback received on version 1.2 final draft
2005 final draft	2005-05-10	Revision and extension of the functionality; revised form and content of the specification
2005	2005-11-14	Translation of the feedback received on version 2005 final draft

Table 2-1: Version history of BMEcat®

3 Price formulas

In addition to the transfer of fixed product prices, BMEcat® 2005 supports **dynamic price calculation**. Thus also such products can be described in catalogs whose prices cannot already be determined at the time of the catalog production, since they are subordinate to parameters that are to be provided for example by the purchaser (e.g., additional order parameters, product characteristics) or are provided by external sources (e.g., metal quotations at stock exchanges). For that purpose, BMEcat® 2005 introduces formulas which describe how the price is calculated on the basis of a term and its contained parameters. These formulas are defined in the transaction area (**FORMULAS**) and can be used on the product level in the context of price information (**PRODUCT_PRICE_DETAILS**). For instance, these price formulas can be used to represent metal surcharges.

3.1 Formula definition

The formula definition takes place independently from a single product in the transaction area of the respective BMEcat® transaction. It is subdivided into (1) descriptive information about the formula, (2) the mathematical definition of the formula, and (3) the definition of the parameters used in the formula.

The identificator that is used for referencing the formula on the product level as well as optionally the formula name, the version number, the explanation text and the additional multimedia information are belonging to the descriptive information.

The mathematical definition (**FORMULA_FUNCTION**) of the formula takes place as a term (**TERM**) that sets parameters and numbers in relation via operators (i.e., basic arithmetic operators) and other mathematical functions (e.g., length).

The parameters used in a formula are to be defined (**PARAMETER_DEFINITIONS**) and are to be provided with an identifying parameter symbol, which is integrated into the mathematical definition for the parameter (e.g., EUR/USD for Euro/US-Dollar exchange rate).

For a detailed description of a parameter, the following can be indicated inter alia:

- Name (e.g., metal weight),
- Description (e.g., "The metal weight indicates the absolute portion of metals for the product."),
- Unit of measurement unit (e.g., kg)
- Classification information, in case the parameter refers to a product feature that is defined in a classification system,
- Parameter origin: the parameter value can be queried from an external data source, can be calculated via another formula, or can result from user input into the target system
- Default value, which is used as the assigned value.

3.2 Formula utilization

The price formulas defined in a BMEcat® catalog are actually used by assigning it to one or several products. This requirement signifies that a price formula does not apply automatically to all products of the catalog. The assignment takes place on the product level with the price information in the container element **PRODUCT_PRICE** by referencing the price formula (**PRICE_FORMULA**); in this case the otherwise customary price (**PRICE_AMOUNT**) may not be indicated any longer.

Besides the reference to the formula, product-specific values can be assigned to its price parameters (**PARAMETERS**); this assignment takes place by referencing the parameter via its symbol.

3.3 Example: metal surcharges

The example shows the usage of price formulas for metals surcharges in the cable industry. Further examples can be found in the element **FORMULA**. The table below lists the relevant parameters for metal surcharges:

Parameter name (per metal) **PARAMETER_ NAME**	Symbol **PARAMETER_ SYMBOL**	Description **PARAMETER_ DESCR**	Unit **PARAMETER_ UNIT**	Description **PARAMETER_ DESCR**	Default value **PARAMETER_ DEFAULT_ VALUE**
Basic price	P	Basic price of the product without metal surcharges	EUR	Fixed parameter	none – is set on the product level
Basic metal value$_{metal}$	MBW$_{metal\ code}$ e.g., MBWAL	€ amount of the metal per 100kg already included in the price	EUR/100kg	Fixed parameter	e.g., 200 for AL
Metal weight$_{metal}$	MG$_{metal\ code}$ e.g., MGAL	Weight of the metal in the product	kg	Fixed parameter	none – is set on the product level
Metal quotation$_{metal}$	MN$_{metal\ code}$ e.g., MNAL	Quotation of the metal at the stock exchange	EUR	Parameter is queried via the internet **PARAMETER_ORIGIN -->type =uri**	none

Table FORMULAS-1: Definition of parameters for metal surcharges (Example)

If the parameters for the metals aluminium (AL) and copper (CU) are used in the price formula, the following formula has to be defined (independently from a specific product):

```
PRICE_AMOUNT = P + (MNCU-MBWCU)*MGCU/100 + (MNAL-MBWAL)*MGAL/100
```

In order to represent this formula, it has to be defined with the element **FORMULA** as part of the formula dictionary (**T_NEW_CATALOG** -> **FORMULAS**). This element contains besides sub elements, which define the actual formula function (**FORMULA_FUNCTION**) and the list of its parameters, further elements describing the formula. The following example shows the represenation of the formula introduced above. The ranges left blank by "..." are explained further down.

```
<FORMULA>
    <FORMULA_ID>MZCUAL</FORMULA_ID>
    <FORMULA_NAME>Formula for metal surcharges for copper and aluminium</FORMULA_NAME>
    <FORMULA_SOURCE>
        <SOURCE_DESCR>Published by the professional association XYZ</SOURCE_DESCR>
        <SOURCE_URI>http://www.xyz.org/bmecat_forms</SOURCE_URI>
        <PARTY_IDREF type="supplier_specific">F242342</PARTY_IDREF>
    </FORMULA_SOURCE>
    <FORMULA_FUNCTION>
        ...
    </FORMULA_FUNCTION>
    <PARAMETER_DEFINITIONS>
        ...
    </PARAMETER_DEFINITIONS>
</FORMULA>
```

The actual formula function is specified by the element **FORMULA_FUNCTION**. Since it does not contain any requirements for the use of the formula, a calculation term (**TERM -->type =function**) is sufficient, in which also no **TERM_CONDITION** element has to appear. The arithmetic function is indicated in the element **TERM_EXPRESSION**.

```
<FORMULA_FUNCTION>
    <TERM type="function">
        <TERM_ID>1</TERM_ID>
        <TERM_EXPRESSION>P+(MNCU-MBWCU)*MGCU/100+(MNAL-MBWAL)*MGAL/100</TERM_EXPRESSION>
    </TERM>
</FORMULA_FUNCTION>
```

The parameters **PARAMETER_DEFINITION** used in the formula are described as follows. Concerning fixed values, the **PARAMETER_ORIGIN** element may not be used, concerning all other values it has to be indicated, e.g., parameter "MNCU". The **PARAMETER_ORIGIN** element and its attribute "**type**" set to "**uri**" says that the value is requested from the respective internet address.

```
<PARAMETER_DEFINITIONS>
    <PARAMETER_DEFINITION>
        <PARAMETER_SYMBOL>P</PARAMETER_SYMBOL>
        <PARAMETER_BASICS>
            <PARAMETER_NAME>basic price</PARAMETER_NAME>
            <PARAMETER_DESCR>basic product price without metal surcharges</PARAMETER_DESCR>
            <PARAMETER_UNIT>EUR</PARAMETER_UNIT>
        </PARAMETER_BASICS>
        <PARAMETER_ORDER>1</PARAMETER_ORDER>
    </PARAMETER_DEFINITION>
    <PARAMETER_DEFINITION>
        <PARAMETER_SYMBOL>MBWCU</PARAMETER_SYMBOL>
        <PARAMETER_BASICS>
            <PARAMETER_NAME>Basic metal value copper</PARAMETER_NAME>
            <PARAMETER_UNIT>kg</PARAMETER_UNIT>
        </PARAMETER_BASICS>
        <PARAMETER_DEFAULT_VALUE>300</PARAMETER_DEFAULT_VALUE>
        <PARAMETER_ORDER>21</PARAMETER_ORDER>
    </PARAMETER_DEFINITION>
    <PARAMETER_DEFINITION>
        <PARAMETER_SYMBOL>MBWAL</PARAMETER_SYMBOL>
        <PARAMETER_BASICS>
            <PARAMETER_NAME>Basic metal value aluminium</PARAMETER_NAME>
            <PARAMETER_UNIT>kg</PARAMETER_UNIT>
        </PARAMETER_BASICS>
        <PARAMETER_DEFAULT_VALUE>200</PARAMETER_DEFAULT_VALUE>
        <PARAMETER_ORDER>31</PARAMETER_ORDER>
    </PARAMETER_DEFINITION>
    <PARAMETER_DEFINITION>
        <PARAMETER_SYMBOL>MGCU</PARAMETER_SYMBOL>
        <PARAMETER_BASICS>
            <PARAMETER_NAME>metal weight copper</PARAMETER_NAME>
            <PARAMETER_UNIT>kg</PARAMETER_UNIT>
        </PARAMETER_BASICS>
        <PARAMETER_ORDER>22</PARAMETER_ORDER>
    </PARAMETER_DEFINITION>
    <PARAMETER_DEFINITION>
        <PARAMETER_SYMBOL>MGAL</PARAMETER_SYMBOL>
        <PARAMETER_BASICS>
            <PARAMETER_NAME>metal weight aluminium</PARAMETER_NAME>
            <PARAMETER_UNIT>kg</PARAMETER_UNIT>
        </PARAMETER_BASICS>
        <PARAMETER_ORDER>32</PARAMETER_ORDER>
    </PARAMETER_DEFINITION>
    <PARAMETER_DEFINITION>
        <PARAMETER_SYMBOL>MNCU</PARAMETER_SYMBOL>
        <PARAMETER_BASICS>
            <PARAMETER_NAME>metal quotation copper</PARAMETER_NAME>
            <PARAMETER_UNIT>EUR/kg</PARAMETER_UNIT>
        </PARAMETER_BASICS>
        <PARAMETER_ORIGIN type="uri">http://ecommerce.xyz.org/mncu</PARAMETER_ORIGIN>
```

```
        <PARAMETER_ORDER>20</PARAMETER_ORDER>
    </PARAMETER_DEFINITION>
    <PARAMETER_DEFINITION>
        <PARAMETER_SYMBOL>MNAL</PARAMETER_SYMBOL>
        <PARAMETER_BASICS>
            <PARAMETER_NAME>metal quotation aluminium</PARAMETER_NAME>
            <PARAMETER_UNIT>EUR/kg</PARAMETER_UNIT>
        </PARAMETER_BASICS>
        <PARAMETER_ORIGIN type="uri">http://ecommerce.xyz.org/mnal</PARAMETER_ORIGIN>
        <PARAMETER_ORDER>30</PARAMETER_ORDER>
    </PARAMETER_DEFINITION>
</PARAMETER_DEFINITIONS>
```

According to the formula definition in the formula dictionary, the price formula can be used on the product level. There it is an alternative to the static price by the **PRICE_AMOUNT** element. The reference to the formula is stored in the **FORMULA_IDREF** element. In addition, **PARAMETER** elements can used for assigning product-specific values to parameters.

```
<PRODUCT_PRICE price_type="net_list">
    <PRICE_FORMULA>
        <FORMULA_IDREF>MZCUAL</FORMULA_IDREF>
        <PARAMETERS>
            <PARAMETER>
                <PARAMETER_SYMBOLREF>P</PARAMETER_SYMBOLREF>
                <PARAMETER_VALUE>15.5</PARAMETER_VALUE>
            </PARAMETER>
            <PARAMETER>
                <PARAMETER_SYMBOLREF>MGCU</PARAMETER_SYMBOLREF>
                <PARAMETER_VALUE>.5</PARAMETER_VALUE>
            </PARAMETER>
            <PARAMETER>
                <PARAMETER_SYMBOLREF>MGAL</PARAMETER_SYMBOLREF>
                <PARAMETER_VALUE>0</PARAMETER_VALUE>
            </PARAMETER>
        </PARAMETERS>
    </PRICE_FORMULA>
    <PRICE_CURRENCY>EUR</PRICE_CURRENCY>
    <TAX>.16</TAX>
</PRODUCT_PRICE>
```

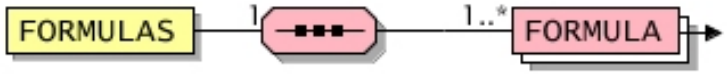
Reference of elements - order by appearance

FORMULAS

(Dictionary of formulas)

This element contains a list of formulas that are specified in the document header.

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
-	-	-	-	-	2005fd

Elements

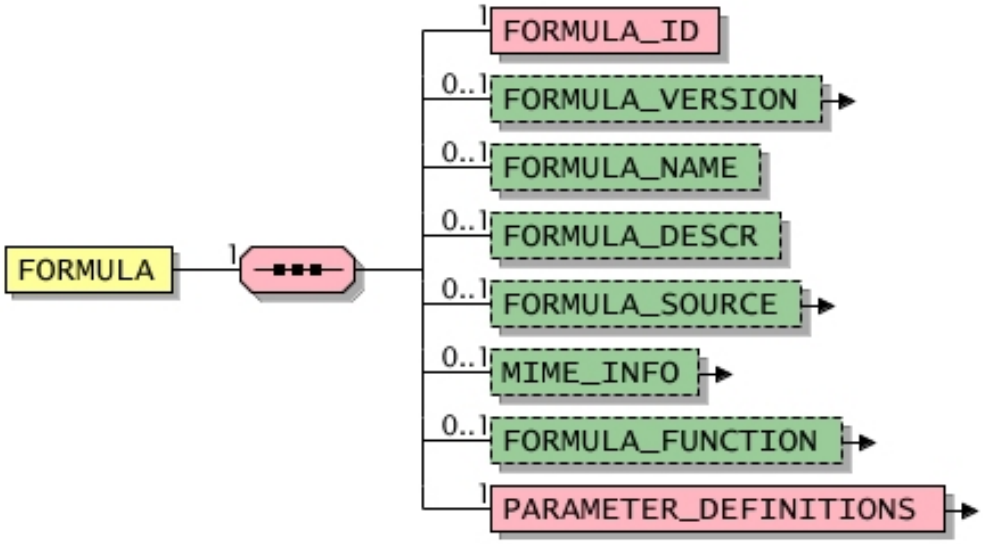
Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Formula	**FORMULA**	Mandatory	Multiple	Definition of a formula on the header level. All required parameters have to be specified here, this can include default values. Eventually, the formula can be referenced on the product level, when referencing a formula, default values can be overwritten with values specific for the respective product.	-	-	-	-	2005fd

FORMULA

(Formula)

This element is used to define a formula on the header level. All required parameters have to be specified here, this can include default values. Eventually, the formula can be referenced on the product level, when referencing a formula, default values can be overwritten with values specific for the respective product.

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
FORMULAS	-	-	-	-	2005fd

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
Formula ID	**FORMULA_ID**	Mandatory	Single	Unique identifier of the formula. This ID is used on the product level to reference the formula. 2005fd: New element	-	**dtSTRING**	60	-	2005fd

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
Formula version	**FORMULA_VERSION**	Optional	Single	Detailled information on the version of the formula 	-	-	-	-	2005fd
Formula name	**FORMULA_NAME**	Optional	Single	e.g., "Formula for livestocks"  2005fd: New element	-	**dtML-STRING**	100	Yes	2005fd
Description of the formula	**FORMULA_DESCR**	Optional	Single	This element is used to describe the formula.  2005fd: New element	-	**dtML-STRING**	250	Yes	2005fd
Formula source	**FORMULA_SOURCE**	Optional	Single	Reference to a document, standard or definition describing the formula. 	-	-	-	-	2005
Additional multimedia information	**MIME_INFO**	Optional	Single	Information about multimedia files For example more detailed explanations of the formula or any other formula related documents could be added here.	-	-	-	-	-
Function of the formula	**FORMULA_FUNCTION**	Optional	Single	Mathematical description of the formula 	-	-	-	-	2005fd
Parameter definitions	**PARAMETER_DEFINITIONS**	Mandatory	Single	List of parameter definitions 	-	-	-	-	2005fd

Example 1
A well documented example can be found in chapter **Example: metal allowances**.

Example 2
In this example the price of the specified product depends on the the delivery time. The price is structured as follows:

- normal (up to 3 days): without allowance
- short (24 hours): 50 euro allowance
- long (up to 2 weeks): 20 euro discount

The price of the product depends on a paramter which has to be entered within a (very small) configuartion by the user. Therefore the example is divided up into three parts: the definition of the formula within the global formula repository is shown below; the specification of the required configuration is described here **Example 2 for element PRODUCT_CONFIG_DETAILS**; the usage of the defined price formulas is described in **Example 2 for element PRODUCT_PRICE_DETAILS**.

One option to define this priceformula is the usage of one formula with three terms (**TERM**) each with different conditions (**TERM_CONDITION**). To access the results of the configuration a paramter "DT" with the **type** "**PARAMETER_ORIGIN -->type =config**"is defined. in this case the content of the element **PARAMETER_ORIGIN** references to the identificator of the configuration step.

```
<FORMULA>
    <FORMULA_ID>33</FORMULA_ID>
    <FORMULA_NAME>Delivery speed</FORMULA_NAME>
    <FORMULA_FUNCTION>
        <TERM type="function">
            <TERM_ID>1</TERM_ID>
            <TERM_CONDITION>DT="N"</TERM_CONDITION>
            <TERM_EXPRESSION>PP</TERM_EXPRESSION>
        </TERM>
        <TERM type="function">
            <TERM_ID>2</TERM_ID>
            <TERM_CONDITION>DT="E"</TERM_CONDITION>
            <TERM_EXPRESSION>PP+50</TERM_EXPRESSION>
        </TERM>
        <TERM type="function">
            <TERM_ID>3</TERM_ID>
            <TERM_CONDITION>DT="S"</TERM_CONDITION>
            <TERM_EXPRESSION>PP-20</TERM_EXPRESSION>
        </TERM>
    </FORMULA_FUNCTION>
    <PARAMETER_DEFINITIONS>
        <PARAMETER_DEFINITION>
            <PARAMETER_SYMBOL>PP</PARAMETER_SYMBOL>
            <PARAMETER_BASICS>
                <PARAMETER_NAME>Product price</PARAMETER_NAME>
                <PARAMETER_UNIT>EUR</PARAMETER_UNIT>
            </PARAMETER_BASICS>
            <PARAMETER_ORDER>1</PARAMETER_ORDER>
        </PARAMETER_DEFINITION>
        <PARAMETER_DEFINITION>
            <PARAMETER_SYMBOL>DT</PARAMETER_SYMBOL>
            <PARAMETER_BASICS>
                <PARAMETER_NAME>Delivery time</PARAMETER_NAME>
            </PARAMETER_BASICS>
            <PARAMETER_ORIGIN type="config">S1</PARAMETER_ORIGIN>
            <PARAMETER_ORDER>2</PARAMETER_ORDER>
        </PARAMETER_DEFINITION>
    </PARAMETER_DEFINITIONS>
```

```
</FORMULA>
```

Example 3
In this example the configuration information for a cable with individual length are shown. The order unit should be piece to order any amount of cables with an individual length within one order line. The cable length can be entered from 10 cm up to 1000 m in 1cm steps.

The length of the cable can be entered by the user via a configuration (see also **Example 3 for element PRODUCT_CONFIG_DETAILS**). The ID of the configuration step (**STEP_ID**) is referenced in the definition of the paramter "LENGTH" in the element **PARAMETER_ORIGIN** with the attribute "**type**" = "**config**".

```
<FORMULA>
    <FORMULA_ID>cableconf</FORMULA_ID>
    <FORMULA_NAME>Formel cable with individual length</FORMULA_NAME>
    <FORMULA_FUNCTION>
        <TERM type="function">
            <TERM_ID>1</TERM_ID>
            <TERM_EXPRESSION>KP+(PPM * LENGTH)</TERM_EXPRESSION>
        </TERM>
    </FORMULA_FUNCTION>
    <PARAMETER_DEFINITIONS>
        <PARAMETER_DEFINITION>
            <PARAMETER_SYMBOL>KP</PARAMETER_SYMBOL>
            <PARAMETER_BASICS>
                <PARAMETER_NAME>Base price</PARAMETER_NAME>
                <PARAMETER_DESCR>There is a base price for every tailor made cable</PARAMETER_DESCR>
                <PARAMETER_UNIT>EUR</PARAMETER_UNIT>
            </PARAMETER_BASICS>
            <PARAMETER_DEFAULT_VALUE>5</PARAMETER_DEFAULT_VALUE>
            <PARAMETER_ORDER>1</PARAMETER_ORDER>
        </PARAMETER_DEFINITION>
        <PARAMETER_DEFINITION>
            <PARAMETER_SYMBOL>PPM</PARAMETER_SYMBOL>
            <PARAMETER_BASICS>
                <PARAMETER_NAME>Price per meter</PARAMETER_NAME>
                <PARAMETER_UNIT>EUR/m</PARAMETER_UNIT>
            </PARAMETER_BASICS>
            <PARAMETER_ORDER>2</PARAMETER_ORDER>
        </PARAMETER_DEFINITION>
        <PARAMETER_DEFINITION>
            <PARAMETER_SYMBOL>LENGTH</PARAMETER_SYMBOL>
            <PARAMETER_BASICS>
                <PARAMETER_NAME>Cable length</PARAMETER_NAME>
                <PARAMETER_UNIT>m</PARAMETER_UNIT>
            </PARAMETER_BASICS>
            <PARAMETER_ORIGIN type="config">CL</PARAMETER_ORIGIN>
            <PARAMETER_ORDER>3</PARAMETER_ORDER>
        </PARAMETER_DEFINITION>
    </PARAMETER_DEFINITIONS>
</FORMULA>
...
<PRODUCT_PRICE_DETAILS>
    <PRODUCT_PRICE price_type="net_list">
        <PRICE_FORMULA>
            <FORMULA_IDREF>cableconf</FORMULA_IDREF>
            <PARAMETERS>
                <PARAMETER>
                    <PARAMETER_SYMBOLREF>PPM</PARAMETER_SYMBOLREF>
                    <PARAMETER_VALUE>1.2</PARAMETER_VALUE>
```

```
                </PARAMETER>
            </PARAMETERS>
        </PRICE_FORMULA>
        <PRICE_CURRENCY>EUR</PRICE_CURRENCY>
        <TAX>.16</TAX>
    </PRODUCT_PRICE>
</PRODUCT_PRICE_DETAILS>
```

Example 4
This example shows how a pen is specified which a individual text can be printed on. The text is limited to 20 characters.

The length of the text is considered within the formula via the property "length" of the string.

The user can enter the printed text in a configuration (see also **Example 4 for element PRODUCT_CONFIG_DETAILS**).

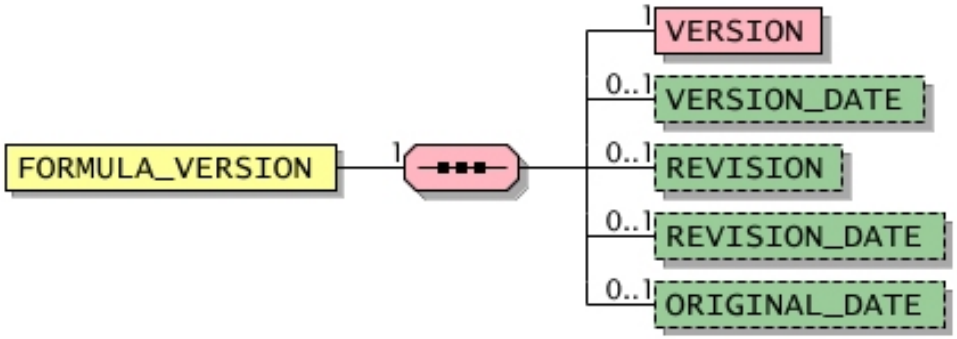
```
<FORMULA>
    <FORMULA_ID>pp</FORMULA_ID>
    <FORMULA_FUNCTION>
        <TERM type="function">
            <TERM_ID>1</TERM_ID>
            <TERM_EXPRESSION>PP+(PPC * TEXT.length)</TERM_EXPRESSION>
        </TERM>
    </FORMULA_FUNCTION>
    <PARAMETER_DEFINITIONS>
        <PARAMETER_DEFINITION>
            <PARAMETER_SYMBOL>PP</PARAMETER_SYMBOL>
            <PARAMETER_BASICS>
                <PARAMETER_NAME>Print price</PARAMETER_NAME>
                <PARAMETER_UNIT>EUR</PARAMETER_UNIT>
            </PARAMETER_BASICS>
            <PARAMETER_DEFAULT_VALUE>10</PARAMETER_DEFAULT_VALUE>
            <PARAMETER_ORDER>1</PARAMETER_ORDER>
        </PARAMETER_DEFINITION>
        <PARAMETER_DEFINITION>
            <PARAMETER_SYMBOL>PPC</PARAMETER_SYMBOL>
            <PARAMETER_BASICS>
                <PARAMETER_NAME>Price per character</PARAMETER_NAME>
                <PARAMETER_UNIT>EUR/character</PARAMETER_UNIT>
            </PARAMETER_BASICS>
            <PARAMETER_ORDER>2</PARAMETER_ORDER>
        </PARAMETER_DEFINITION>
        <PARAMETER_DEFINITION>
            <PARAMETER_SYMBOL>TEXT</PARAMETER_SYMBOL>
            <PARAMETER_BASICS>
                <PARAMETER_NAME>Print text</PARAMETER_NAME>
            </PARAMETER_BASICS>
            <PARAMETER_ORIGIN type="config">PTEXT</PARAMETER_ORIGIN>
            <PARAMETER_ORDER>3</PARAMETER_ORDER>
        </PARAMETER_DEFINITION>
    </PARAMETER_DEFINITIONS>
</FORMULA>
```

FORMULA_VERSION

(Formula version)

This element contains detailled information on the version of the formula.

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
FORMULA	-	-	-	-	2005fd

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
Version	**VERSION**	Mandatory	Single	Detailled information on the version 2005fd: New element	-	**dtSTRING**	20	-	2005fd
Version date	**VERSION_DATE**	Optional	Single	Date of the given version 2005fd: New element	-	**dtDATETI-ME**	-	-	2005fd
Revision	**REVISION**	Optional	Single	Revision number of the given version 2005fd: New element	-	**dtSTRING**	20	-	2005fd

Elements

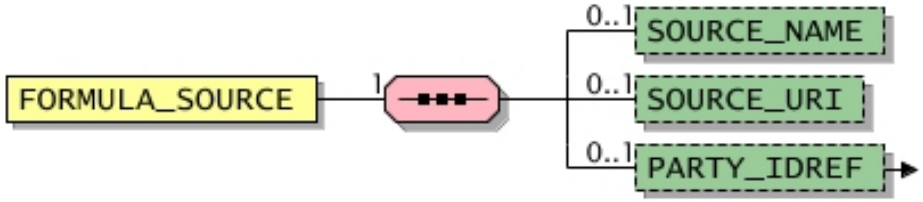
Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
Revision date	**REVISION_DATE**	Optional	Single	Date of the latest revision  2005fd: New element	-	**dtDATETIME**	-	-	2005fd
Original date	**ORIGINAL_DATE**	Optional	Single	Date of the first version in its first revision  2005fd: New element	-	**dtDATETIME**	-	-	2005fd

FORMULA_SOURCE

(Formula source)

This element contains a reference to a document, standard or definition describing the formula.

2005fd: New element
2005: The sub-element **SOURCE_DESCR** was renamed to **SOURCE_NAME**.



General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
FORMULA	-	-	-	-	2005

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Source description	**SOURCE_NAME**	Optional	Single	Description of the source, e.g., the name of the document or standard 2005fd: New element 2005: This element was named **SOURCE_DESCR** in Version 2005 final draft, now it is named **SOURCE_NAME**. The maximum length has been reduced from 250 characters to 80 characters.	-	**dtML-STRING**	80	Yes	2005
URI of the source	**SOURCE_URI**	Optional	Single	URI of the source, e.g., pointing to the document or standard 2005fd: New element	-	**dtSTRING**	255	-	2005fd
Reference to a business partner	**PARTY_IDREF - type**	Optional	Single	Reference to a business partner. It contains the unique identifier (**PARTY_ID**) of the respective party (element **PARTY**). In this context the element is used to reference the organisation which is responsible for the specification of the element.	-	**dtSTRING**	250	-	2005fd

PARTY_IDREF

(Reference to a business partner)

This element provides a reference to a business partner. It contains the unique identifier (**PARTY_ID**) of the respective party (element **PARTY**).

2005fd: New element

General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
FORMULA_SOURCE	-	**dtSTRING**	250	-	2005fd

Attributes

Designation	Attribute name	Mandatory/ optional	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Coding standard	type	Optional	This attribute is used to state the coding standard to which the identifier (**PARTY_ID**) adheres. The most common coding standards are predefined. See also: **Predefined values for attribute "type"**	-	**dtSTRING**	250	-	1.2_fd

Predefined values for attribute "type"

Designation	Attribute value	Explanation	l.chg. in ver.
Buyer-specific number	buyer_specific	Identification number defined by the buyer	-
Customer specific number	customer_specific	Identification number defined by the customer	2005fd
Dun & Bradstreet	duns	DUNS-Number (see also **http://dbuk.dnb.com/english/DataBase/duns.htm**)	-
Global location number	iln	Internationally called GLN (see GLN below)	-
Global location number	gln	Global Location Number GLN (see also **http://www.ean-int.org/locations.html**)	2005fd
Party-specific number	party_specific	Identification number defined by the respective party	2005fd
Supplier-specific number	supplier_specific	Identification number defined by the supplier	-
Other codification standard	User defined value, format: \w{1,250}	Identificator of codification standard. "\w{1,250}" means that the identificator of the codification standard has to be at least 1 chraracter long up to a maximum of 250 characters.	-

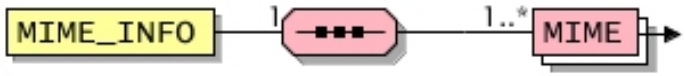
MIME_INFO

(Additional multimedia information)

This element can be used to specify references to additional multimedia documents belonging to a particular article. This makes it possible, for example, to reference photographs or product data sheets of an article at the same time as the catalog data is exchanged.

It is assumed that this additional data is transferred (separately) and that it is imported relative to the directory specified in the **HEADER** as **MIME_ROOT**.

This element can contain any number of **MIME** elements. Each of these elements represents exactly one reference to an additional document. The definition of the **MIME** element is based on the MIME format (Multipurpose Internet Mail Extensions). The MIME format serves to standardize data transfers over the Internet.



General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
FORMULA	-	-	-	-	-

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Multimedia document	**MIME**	Mandatory	Multiple	Information about a multimedia file. The file itself is only referenced and must be transferred separately.	-	-	-	-	-

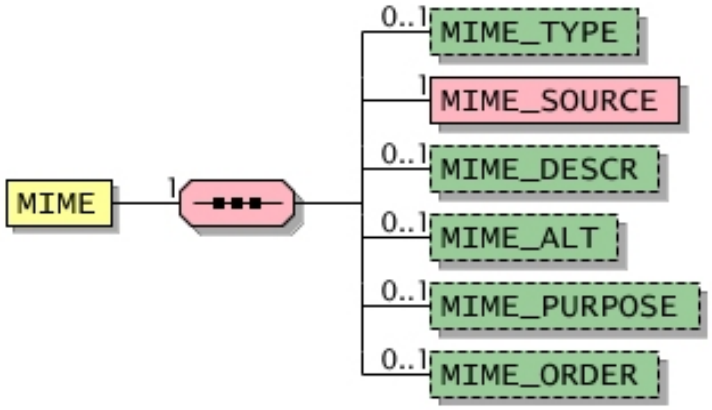
Example

```
<MIME_INFO>
    <MIME>
        <MIME_TYPE>image/jpeg</MIME_TYPE>
        <MIME_SOURCE>55-K-31.jpg</MIME_SOURCE>
        <MIME_DESCR>Frontal view of the standard DIN A4 letter tray</MIME_DESCR>
        <MIME_ALT>Image of the standard DIN A4 letter tray</MIME_ALT>
        <MIME_PURPOSE>normal</MIME_PURPOSE>
    </MIME>
    <MIME>
        <MIME_TYPE>image/jpeg</MIME_TYPE>
        <MIME_SOURCE>55-K-31k.jpg</MIME_SOURCE>
        <MIME_DESCR>Frontal view of the standard DIN A4 letter tray</MIME_DESCR>
        <MIME_ALT>Image of the standard DIN A4 letter tray</MIME_ALT>
        <MIME_PURPOSE>thumbnail</MIME_PURPOSE>
    </MIME>
    <MIME>
        <MIME_TYPE>application/pdf</MIME_TYPE>
        <MIME_SOURCE>office line 2001.pdf</MIME_SOURCE>
        <MIME_DESCR>Designation of the complete product line office line 2001</MIME_DESCR>
        <MIME_ALT>PDF file for office line 2001</MIME_ALT>
        <MIME_PURPOSE>others</MIME_PURPOSE>
    </MIME>
</MIME_INFO>
```

MIME

(Multimedia document)

This element serves for transferring information about a multimedia file. The file itself is only referenced and must be transferred separately.



General

Used in	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
MIME_INFO	-	-	-	-	-

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
MIME type	**MIME_TYPE**	Optional	Single	Type of the additional document; this element is oriented towards the mime type usual in the Internet (**ftp://ftp.isi.edu/in-notes/rfc1341.txt**) See also: **Predefined values for element MIME_TYPE**	-	**dtSTRING**	30	-	-
Source	**MIME_SOURCE**	Mandatory	Single	The relative path and the file name or URL address. The MIME_SOURCE string is combined with the base path (**MIME_ROOT**) specified in the header of the document (attached to it by means of a simple contecatenation). Sub-directories must be separated by means of slashes ("/") (e.g. /public/document/demo.pdf).	-	**dtML-STRING**	255	Yes	-
Designation	**MIME_DESCR**	Optional	Single	Description of the additional file. It will be displayed in the target system.	-	**dtML-STRING**	250	Yes	-

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Alternative text	**MIME_ALT**	Optional	Single	Alternative text used if the file cannot be represented in the target system, for example.  2005fd: The maximum length has been extended from 50 characters to 80 characters.	-	**dtML-STRING**	80	Yes	2005fd
Purpose	**MIME_PURPOSE**	Optional	Single	Desired purpose for which the MIME document is to be used in the target system.  2005fd: The list of allowed values has been extended by 'icon' and 'safety_data_sheet'. See also: **Permitted values for element MIME_PURPOSE**	-	**dtSTRING**	20	-	2005fd
Order	**MIME_ORDER**	Optional	Single	Order in which the additional data is to be represented in the target system. When additional documents are listed they should be represented in ascending order (the first document is the one with the lowest number).	-	**dtINTE-GER**	-	-	-

Predefined values for element MIME_TYPE

Designation	Element value	Explanation	l.chg. in ver.
PDF document	application/pdf	(Local) Acrobat PDF format	-
XML file	application/xml	(Local) XML file (see also **http://www.w3.org/TR/xhtml-media-types/xhtml-media-types.html**)	2005fd
GIF	image/gif	(Local) image/graphic in GIF format	-
JPEG	image/jpeg	(Local) image/graphic in JPEG format	-
HTML	text/html	(Local) document in HTML format (within the catalog file system; see also **http://www.w3.org/TR/xhtml-media-types/xhtml-media-types.html**)	-
Text	text/plain	(Local) unformatted text file	-
URL	url	Link to a resource on the Internet (or Intranet); this is not an official MIME type but will be used here anyway. Example: "http://www.bmecat.org"	-
...	User defined value, format: [\w\-\.]{1,30}	All MIME types can be used. It cannot be guaranteed, however, that the target systems will be able to represent them.	-

Permitted values for element MIME_PURPOSE

Designation	Element value	Explanation	l.chg. in ver.
Product data sheet	data_sheet	Product data sheet (e.g., technical drawing)	-
Detail view	detail	Enlarged image	-

Permitted values for element MIME_PURPOSE

Designation	Element value	Explanation	l.chg. in ver.
Icon	icon	Small icon, e.g, indicating the fullfilment of a standard  2005fd: New value	2005fd
Logo	logo	Product or supplier logo	1.2_fd
Normal view	normal	Normal view (normal size)	-
Safety data sheet	safety_data_sheet	Safety data sheet (for dangerous materials, for example)  2005fd: New value	2005fd
Thumbnail view	thumbnail	Preview (small)	-
Others	others	Should none of the other values be suitable, others can be used.	-

Example
References to an image file and a product data sheet belonging to the “Charlie casual shirt” must be transferred at the same time as the product data is being exchanged.

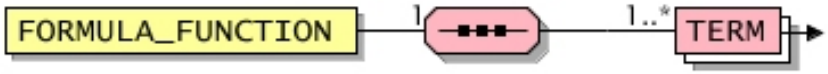
```
<MIME_INFO>
    <MIME>
        <MIME_TYPE>image/jpeg</MIME_TYPE>
        <MIME_SOURCE>charlie.jpg</MIME_SOURCE>
        <MIME_DESCR>Front view of our casual shirt</MIME_DESCR>
        <MIME_ALT>Photo of Charlie</MIME_ALT>
        <MIME_PURPOSE>normal</MIME_PURPOSE>
    </MIME>
    <MIME>
        <MIME_TYPE>application/pdf</MIME_TYPE>
        <MIME_SOURCE>charlie.pdf</MIME_SOURCE>
        <MIME_DESCR>Designation of the production process</MIME_DESCR>
        <MIME_ALT>PDF file belonging to Charlie</MIME_ALT>
        <MIME_PURPOSE>data_sheet</MIME_PURPOSE>
    </MIME>
</MIME_INFO>
```

FORMULA_FUNCTION

(Function of the formula)

This element describes the formula in a technical way. Therefore the formula expression can be mathematically evaluated.

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
FORMULA	-	-	-	-	2005fd

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Term	**TERM** **- type**	Mandatory	Multiple	Term for calculating values or for restricting configurations Terms are used in the context of formulas only to calculate values (**TERM -->type =function**). Terms for the restriction of configurations (**TERM -->type =constraint**) are not allowed here. The operands used in the term conditions (**TERM_CONDITION**) and term expressions (**TERM_EXPRESSION**), have to be parameters symbols (**PARAMETER_SYMBOL**) defined using parameters (**PARAMETER_DEFINITION**).	-	-	-	-	2005fd

Example 1

In the following example the weight of a wood plate is calculated (overallweight = length * width * 0.3). With the parameters O, L and W the function of the formula looks like this:

```
<FORMULA_FUNCTION>
    <TERM type="function">
        <TERM_ID>PLATE1</TERM_ID>
        <TERM_EXPRESSION>O = L * W * 0.3</TERM_EXPRESSION>
    </TERM>
</FORMULA_FUNCTION>
```

Example 2
In the following example the delivery time of the product depends on the selected alternative. With the parameters DURATION and STEP1, which refers to the CONFIG_STEP for selecting the alternative, the function of the formula looks like this:

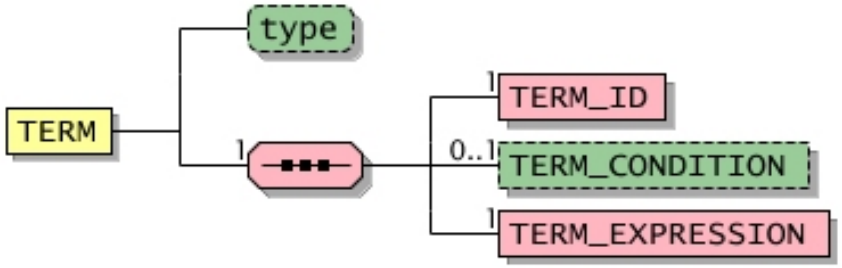
```
<FORMULA_FUNCTION>
    <TERM type="function">
        <TERM_ID>TERM1</TERM_ID>
        <TERM_CONDITION>STEP1 = "A1"</TERM_CONDITION>
        <TERM_EXPRESSION>DURATION = 4</TERM_EXPRESSION>
    </TERM>
    <TERM type="function">
        <TERM_ID>TERM2</TERM_ID>
        <TERM_CONDITION>STEP1 = "A2"</TERM_CONDITION>
        <TERM_EXPRESSION>DURATION = 10</TERM_EXPRESSION>
    </TERM>
    <TERM type="function">
        <TERM_ID>TERM3</TERM_ID>
        <TERM_CONDITION>STEP1 = "A3"</TERM_CONDITION>
        <TERM_EXPRESSION>DURATION = 14</TERM_EXPRESSION>
    </TERM>
</FORMULA_FUNCTION>
```

TERM

(Term)

This element specifies a term for calculating values or for restricting configurations. Which of this two function the term serves depends on the content of the attribute "**type**".

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
FORMULA_FUNCTION	-	-	-	-	2005fd

Attributes

Designation	Attribute name	Mandatory/ optional	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Term type	type	Optional	This attribute specifies the purpose of the term. See also: **Permitted values for attribute "type"**	function	**dtSTRING**	20	-	2005fd

Permitted values for attribute "type"

Designation	Attribute value	Explanation	l.chg. in ver.
Calculation	**function**	The term contains a formula to calculate a value.	2005fd
Constraint	constraint	The term is used to restrict valid configurations.	2005fd

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
Identification of the term	**TERM_ID**	Mandatory	Single	Unique identifier of the term.  2005fd: New element	-	**dtSTRING**	20	-	2005fd
Condition	**TERM_CONDITION**	Optional	Single	This element contains the condition of the term (e.g. "M1='red' and not(M2>5)"). The meaning of the element depends on the type of the term (**TERM -->type**). In calculation terms (**TERM -->type =function**) the element **TERM_CONDITION** is used to indicate if the expression of the term (**TERM_EXPRESSION**) should be calculated. Normally in these cases there are different terms (**TERM**) with diverse condition (**TERM_CONDITION**) and diverse expressions (**TERM_EXPRESSION**) (see also **Example for price formulas** and **Examples for configuration rules**). If the term is used to express a constraint to specify valid configurations a term is valid if the result of the evaluation of the **TERM_CONDITION** equals the evaluation of **TERM_EXPRESSION**. If all configuartion terms are valid the whole configuration is valid (see also **Examples for configuration rules**. This means that in case of configurations the meaning of the content of the **TERM_CONDITION** depends on the value of the **TERM_EXPRESSION**. Is the valuer "true" the **TERM_CONDITION** specifies the conditions for a valid product. Is the value "false" the element **TERM_CONDITION** specifies situation which are not allowed for valid products. The language to define the conditions is defined close to terms from the language javascript (see also **http://web.archive.org/web/20040211195031/http://developer.netscape.com/library/manuals/2000/javascript/1.5/guide/**). The content of the condition has to be evaluated to a logical value ("true" oder "false").  2005fd: New element	-	**dtSTRING**	3000	-	2005fd

Elements

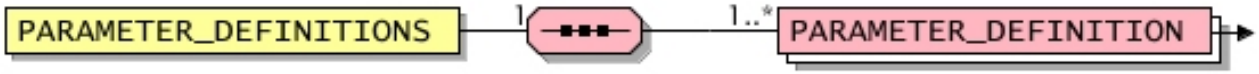
Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
Expression	**TERM_EXPRESSION**	Mandatory	Single	This element is used to specify an expression. This expression consists of parameter symbols, mathematical functions, operands and numbers. Conditionals, loops or funftion definitions are not allowed. In the context of a calculation term (**TERM -->type =function**) the expression has to be calculated either if the content of the element **TERM_CONDITION** evaluates to a true result or if the element **TERM_CONDITION** is absent. In this case the element **TERM_EXPRESSION** contains a funktion like P = A * B (see also **Examples to price formulas** and **Examples to configuration rules**). If the term is used to constrict valid configurations (**TERM -->type =constraint**) within configuration rules the element **TERM_EXPRESSION** contains always either "true" or "false" (see also **CONFIG_RULES**). The language to define the expressions is defined close to terms from the language javascript (see also **http://web.archive.org/web/20040211195031/http://developer.netscape.com/library/manuals/2000/javascript/1.5/guide/**).  2005fd: New element	-	**dtSTRING**	3000	-	2005fd

PARAMETER_DEFINITIONS

(Parameter definitions)

This element contains a list of definitions of parameters, which can be used in formulas.

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
FORMULA	-	-	-	-	2005fd

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
Parameter definition	**PARAMETER_DEFINITI-ON**	Mandatory	Multiple	Definition of the parameter in the document header	-	-	-	-	2005

PARAMETER_DEFINITION

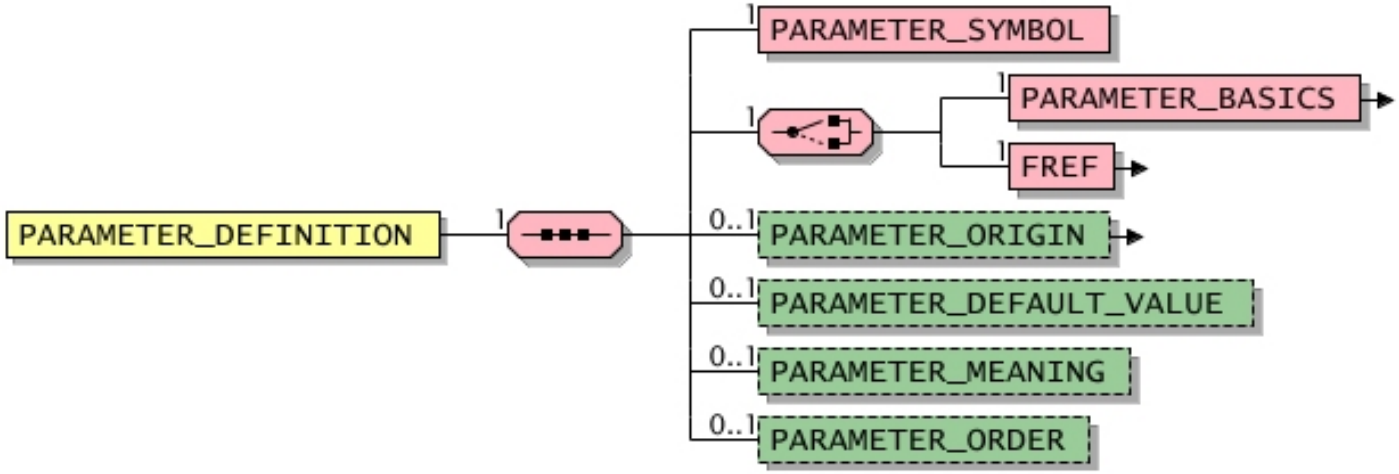
(Parameter definition)

This element defines the parameter in the document header.

Referencing this parameter and setting a product-specific value takes place on the product level by the **PARAMETERS** element.

Besides using the parameters to calculate the formula, the paramters could also be displayed as a list in the target system. Often this allready enables the buyer to evaluate the price.

2005fd: New element
2005: The sub-element **CLASSIFICATION_FEATURE_REF** was renamed to **FREF**.



General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
PARAMETER_DEFINITIONS	-	-	-	-	2005

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
Parameter symbol	**PARAMETER_SYMBOL**	Mandatory	Single	This element contains the parameter symbol. The symbol can be used in formulas where its represents the parameter. In addition, the symbol can be used on the product level for setting product-specific parameter values.  The symbol must start with a character followed by a combination of characters and numbers. Country-specific characters, i.e. vowels, are not allowed.  2005fd: New element	-	**dtSTRING**	60	-	2005fd
Basic parameter information	**PARAMETER_BASICS**	Mandatory	Single	Basic information on the paraemter; it is not necessary, if the parameter has been derived from a property of a classification system (then, it is described there) 	-	-	-	-	2005fd
Reference to a feature	**FREF**	Mandatory	Single	Reference to a feature which is defined in a classification system 	-	-	-	-	2005
Parameter origin	**PARAMETER_ORIGIN - type**	Optional	Single	This element determines the origin of the parameter. 	-	**dtML-STRING**	6000	Yes	2005fd
Default value of the parameter	**PARAMETER_ DEFAULT_VALUE**	Optional	Single	This element sets a default value for the parameter. The parameter can be changed on the product level by the **PARAMETER_VALUE** element.  2005fd: New element	-	**dtSTRING**	250	-	2005fd
Parameter type	**PARAMETER_MEANING**	Optional	Single	Marks the meaning of the parameter  2005fd: New element See also: **Permitted values for element PARAMETER_MEANING**	-	**dtSTRING**	20	-	2005fd
Parameter order	**PARAMETER_ORDER**	Optional	Single	Order (sequence) in which the parameter is listed in target system When parameters are listed they are always represented in ascending order (the first parameter is the one with the lowest number).  2005fd: New element	-	**dtINTE-GER**	-	-	2005fd

Permitted values for element PARAMETER_MEANING

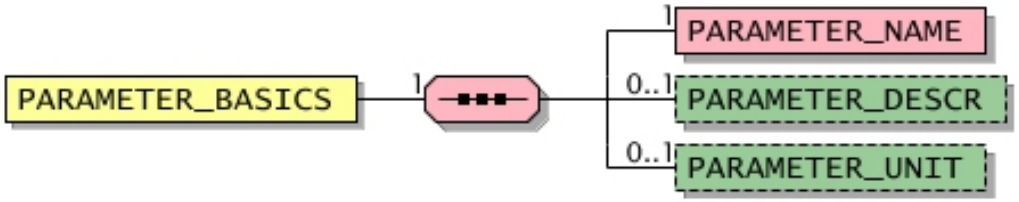
Designation	Element value	Explanation	l.chg. in ver.
Allowance or charge	allow_or_charge	The parameter contains an allowance or charge.	2005fd
Tax rate	tax	The parameter contains a tax rate.	2005fd

PARAMETER_BASICS

(Basic parameter information)

This element provides basic information on the paraemter; it is not necessary, if the parameter has been derived from a property of a classification system (then, it is described there)

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
PARAMETER_DEFINITION	-	-	-	-	2005fd

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Parameter name	**PARAMETER_NAME**	Mandatory	Single	Name of the parameter. The name is shown in the GUI when listing the values for a product, e.g., Metal weight: 0.5 kg 2005fd: New element	-	**dtML-STRING**	100	Yes	2005fd
Parameter description	**PARAMETER_DESCR**	Optional	Single	This element is used to describe the parameter. 2005fd: New element	-	**dtML-STRING**	250	Yes	2005fd
Parameter unit	**PARAMETER_UNIT**	Optional	Single	Unit of measurement of the parameter. The unit is shown in the GUI when listing the values for a product, e.g., Metal weight: 0.5 kg 2005fd: New element 2005: The maximum length has been reduced from 600 characters to 60 characters.	-	**dtML-STRING**	60	Yes	2005

FREF

(Reference to a feature)

This element contains a reference to a feature, which is defined in a classification system.

2005fd: New element
2005: This element was named **CLASSIFICATION_FEATURE_REF** in BMEcat 2005 final draft, now it is named **FREF**.

General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
PARAMETER_DEFINITION	-	-	-	-	2005

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Classification or feature system	**REFERENCE_FEATURE_SYSTEM_NAME**	Mandatory	Single	Name of the referenced classification or feature system If the classification system is transferred by the **T_NEW_CATALOG** transaction and its **CLASSIFICATION_SYSTEM** element, the value of this element must be equal with the name defined in **CLASSIFICATION_SYSTEM_NAME**. Remark: The format for the name (**CLASSIFICATION_SYSTEM_NAME**) should comply with the following structure: "<Name>-<Major Version>.<Minor Version> See also: **Predefined values for element REFERENCE_FEATURE_SYSTEM_NAME** **Examples** ECLASS-4.1, UNSPSC-6.0801 `<REFERENCE_FEATURE_SYSTEM_NAME>ECLASS-4.1</REFERENCE_FEATURE_SYSTEM_NAME>`	-	**dtSTRING**	80	-	-
Feature reference	**FT_IDREF**	Mandatory	Single	Reference to the unique ID of a feature (see**CLASSIFICATION_SYSTEM_FEATURE_TEMPLATE**)	-	**dtSTRING**	60	-	-

Predefined values for element REFERENCE_FEATURE_SYSTEM_NAME

Designation	Element value	Explanation	l.chg. in ver.
CPV	CPV-yyyy-mm-dd	Reference to the classification system CPV (Common Procurement Vocabulary) with version date (e.g., CPV-2003-12-16); see siehe **http://simap.eu.int**	2005fd
eCl@ss	ECLASS-x.y	Reference to the classification system eCl@ss with major version x and minor version y (e.g., ECLASS-5.1); see **http://www.eclass-online.com**	-
eOTD	EOTD-yyyy-mm-dd	Reference to the classification system eOTD (ECCMA Open Technical Dictionary) with version date (e.g., EOTD-2004-08-01); see **http://www.eccma.org**	2005fd
ETIM	ETIM-x.y	Reference to the classification system ETIM with major version x and minor version y (e.g., ETIM-2.0); see **http://www.etim.de**	-
GPC	GPC-x.y	Reference to the classification system EAN.UCC GPC (Global Product Classification) with major version x and minor version y (e.g., GPC-4.0); see **http://www.gs1.org**	2005fd
profiCl@ss	PROFICLASS-x.y	Reference to the classification system profiCl@ss with major version x and minor version y (e.g., PROFICLASS-2.1); see **http://www.proficlass.de**	2005fd
RNTD	RNTD-x.y	Reference to the classification system RNTD (RosettaNet Technical Dictionary) with major version x and minor version y (e.g., RNTD-4.0); see **http://www.rosettanet.org**	2005fd
RUS	RUS-x.y	Reference to the classification system RUS (Requisite Unifying Structure) with major version x and minor version y (e.g., RUS-4.0); see **http://ruspor-tal.requisite.com**	2005fd
UNSPSC	UNSPSC-x.yyyy	Reference to the classification system UNSPSC with major version x and minor version y (e.g., UNSPSC-6.0801); see **http://www.unspsc.org**	-
Proprietary classificati-on system	udf_NAME-x.y	Reference to a proprietary (non-standard) classification system. The value has to start with 'udf_' followed by the classification system name in capital letters, hyphen, and version (major version x and minor version y). For example: udf_MYSYSTEM-3.0. The length of the name is limited to 72 characters; the version to 7 characters.	-
Other classification sy-stem	User defined value, for-mat: [\w\-\.]{1,80}	Other standard classification system, which is not pre-defined in BMEcat, can be described in a similar way: The name of the system in capital, followed by a hyphen and the version information. For instance, NAME-3.4. The length of the name is limited to 72 characters. The version information, where major and minor version are separated by a dot, is limited to 7 characters.	2005fd

PARAMETER_ORIGIN

(Parameter origin)

This element determines the origin of the parameter. If the parameter value is given in a **PARAMETER_DEFAULT_VALUE** or **PARAMETER_VALUE** element, this element is not permitted.

The content of this element depends on the content of the attribute '**type**'. The element is language-dependent in order to enable language-specific URISs, if the attribute has the value "uri".

2005fd: New element

General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
PARAMETER_DEFINITION	-	**dtML-STRING**	6000	Yes	2005fd

Attributes

Designation	Attribute name	Mandatory/ optional	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Origin type	type	Mandatory	This attribute determines the source of the parameter value. See also: **Permitted values for attribute "type"**	-	**dtSTRING**	20	-	2005fd

Permitted values for attribute "type"

Designation	Attribute value	Explanation	l.chg. in ver.
User input	config	The value is provided by the user during the product configuration. In this case, the **PARAMETER_ORIGIN** element must contain the identifier of the respective configuration step (**STEP_ID**).	2005fd
Formula	formula	The value is the result of another formula. In this case, the **PARAMETER_ORIGIN** element must contain the identifier of the respective formula (**FORMULA_ID**).	2005fd
Value from URI	uri	The value is requested online from the a URI. In this case, the **PARAMETER_ORIGIN** element must contain the identifier of the respective URI. If the internet connection is broken, the target system may determine the parameter value by other means, i.e. user input or local data source.	2005fd

Permitted values for attribute "type"

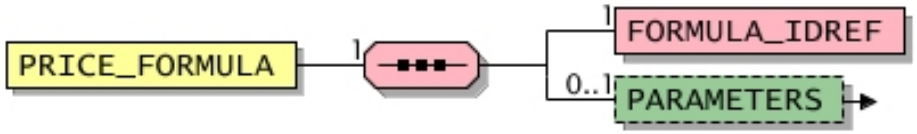
Designation	Attribute value	Explanation	l.chg. in ver.
XPATH	xpath	The value is referenced by a XPATH expression. In this case, the **PARAMETER_ORIGIN** element must contain the respective XPATH expression. Elements and its values within the BMEcat catalog documents can be referenced by these expressions (see also **http://www.w3.org/TR/xpath**). The starting element for XPATH is the **PRODUCT** element of the respective product (for which the formula is used). **Example 1** A XPATH expression for referencing the **INTERNATIONAL_PID** element looks like this: `<PARAMETER_ORIGIN>PRODUCT_DETAILS/INTERNATIONAL_PID[@type='ean']</PARAMETER_ORIGIN>` . **Example 2** A reference to a product feature is made by its ID (**FT_IDREF**) or its name (**FNAME**): `<PARAMETER_ORIGIN>PRODUCT_FEATURES/FEATURE[FT_IDREF='a12120']/FVALUE</PARAMETER_ORIGIN>` .	2005fd

PRICE_FORMULA

(Price formula)

This element defines a formula for price calculation based on parameters.

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
-	-	-	-	-	2005fd

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Reference to a formula	**FORMULA_IDREF**	Mandatory	Single	Reference to the unique identifier of a formula. The reference must point to a formula defined in the document (**FORMULA** element identified by **FORMULA_ID**). 2005fd: New element	-	**dtSTRING**	60	-	2005fd
Paramters	**PARAMETERS**	Optional	Single	List of paramters which are used in a price formula	-	-	-	-	2005fd

Example

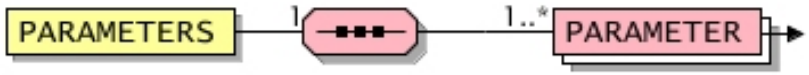
Refer also to the examples in the **PRODUCT_PRICE_DETAILS** element .

PARAMETERS

(Paramters)

This element contains a list of parameters, which can be used in formulas.

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
PRICE_FORMULA	-	-	-	-	2005fd

Elements

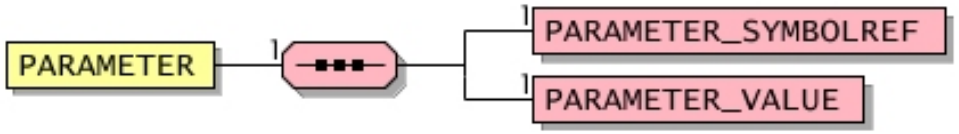
Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
Parameter	**PARAMETER**	Mandatory	Multiple	Used on the product level to set the value of a parameter. If the parameter has a default value, then this value is replaced by the new one.	-	-	-	-	2005fd

PARAMETER

(Parameter)

This element is used on the product level to set the value of a parameter. If the parameter has a default value, then this value is replaced by the new one.

2005fd: New element



General

Used in	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
PARAMETERS	-	-	-	-	2005fd

Elements

Designation	Element name	Mandatory/ Optional	Single/ Multiple	Explanation	Default value	Data type	Field length	Lang. specific	I.chg. in ver.
Reference to a parameter	**PARAMETER_SYMBOLREF**	Mandatory	Single	Reference to the unique identifier of a parameter. The reference must point to a parameter defined in the document (**PARAMETER_DEFINITION** element identified by **PARAMETER_SYMBOL**). 2005fd: New element	-	**dtSTRING**	60	-	2005fd
Parameter value	**PARAMETER_VALUE**	Mandatory	Single	This element contains the value of the parameter. If the **PARAMETER_DEFAULT_VALUE** element has been used for setting a default value, this value is replaced by the new one. 2005fd: New element	-	**dtSTRING**	250	-	2005fd

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Annex

Basic data types

Designation	Data type name	Explanation	Underlying standards	Format	l.chg. in ver.
Date and time	dtDATETIME	Date and optional time specification  2005fd: This new data type replaces the following types: **dtDATETYPE**, **dtTIMETYPE** and **dtTIMEZONETYPE** **Examples:** 2005-03-27T08:10:30+01:00 (corresponds to: March 27, 2005 08:10:30 CET); 2005-03; 2005-03-27; 2005-03-27T08:10	XML Schema Part 2: Data types Second Edition W3C Recommendation 28 October 2004 Data type **dateTime** **http://www.w3.org/TR/xmlschema-2/#dateTime** see also: ISO 8601: Representations of dates and times	yyyy-mm-ddThh:mm:ss+tt:00	2005fd
Integer value	dtINTEGER	Whole number with an optional sign. No fractions. No floating-point numbers. No separator for thousand is permitted. **Examples:** 1; 58502; -13	XML Schema Part 2: Data types Second Edition W3C Recommendation 28 October 2004 Data type **integer** **http://www.w3.org/TR/xmlschema-2/#integer**		-

Multilingual string	dtMLSTRING	This data type differs from the **dtSTRING** data type only in the additional "lang" attribute, which is added to the respective element. The "lang" attribute specifies the language of text used in the element. It has to be coded according to the **dtLANG** data type. This new data type allows multilingual catalogs, thus multilangual content (i.e. texts) can be transferred in a single BMEcat document (see also: **Chapter: Multilingual Catalog Documents**). In a multilingual document, all language-dependent elements of cardinality "single" may occur multiple, though the values of the "lang" attribute must be different.
		
		Examples:
		The short description in the **DESCRIPTION_SHORT** element is provided both in German and English . Note that the "lang" attribute in the second **PRODUCT_DETAILS** element is not necessary, if the default language of the catalog (**CATALOG**) has been set to German.
		
		`<PRODUCT_DETAILS>`
		`  <DESCRIPTION_SHORT lang="deu">Schraubendreher`
		`</DESCRIPTION_SHORT>`
		`  <DESCRIPTION_SHORT lang="eng">Screw driver</DESCRIPTION_SHORT>`
		`</PRODUCT_DETAILS>`
		`...`
		`<PRODUCT_DETAILS>`
		`  <DESCRIPTION_SHORT>Bohrer</DESCRIPTION_SHORT>`
		`  <DESCRIPTION_SHORT lang="eng">Drill</DESCRIPTION_SHORT>`
		`</PRODUCT_DETAILS>`
					-

Designation	Data type name	Explanation	Underlying standards	Format	l.chg. in ver.
Character string	dtSTRING	Character string according to the encoding standard (see also **Chapter: Coding in XML**) **Example:** Screw driver, yellow			-

History of changes Version 2005fd

Change	Description of changes
dtDATETIME	This new data type replaces the following types: **dtDATETYPE**, **dtTIMETYPE** and **dtTIMEZONETYPE**
FORMULA	New element
FORMULA_DESCR	New element
FORMULA_FUNCTION	New element
FORMULA_ID	New element
FORMULA_IDREF	New element
FORMULA_NAME	New element
FORMULA_SOURCE	New element
FORMULA_VERSION	New element
FORMULAS	New element
FREF	New element
MIME_ALT	The maximum length has been extended from 50 characters to 80 characters.
MIME_PURPOSE	The list of allowed values has been extended by 'icon' and 'safety_data_sheet'.
MIME_PURPOSE =icon	New value
MIME_PURPOSE =safety_data_sheet	New value
MIME_TYPE =application/xml	New value
ORIGINAL_DATE	New element
PARAMETER	New element
PARAMETER_BASICS	New element
PARAMETER_DEFAULT_VALUE	New element
PARAMETER_DEFINITION	New element
PARAMETER_DEFINITIONS	New element
PARAMETER_DESCR	New element
PARAMETER_MEANING	New element
PARAMETER_NAME	New element

Change	Description of changes
PARAMETER_ORDER	New element
PARAMETER_ORIGIN	New element
PARAMETER_SYMBOL	New element
PARAMETER_SYMBOLREF	New element
PARAMETER_UNIT	New element
PARAMETER_VALUE	New element
PARAMETERS	New element
PARTY_IDREF	New element
PRICE_FORMULA	New element
REFERENCE_FEATURE_SYSTEM_NAME =CPV-yyyy-mm-dd	New value
REFERENCE_FEATURE_SYSTEM_NAME =EOTD-yyyy-mm-dd	New value
REFERENCE_FEATURE_SYSTEM_NAME =GPC-x.y	New value
REFERENCE_FEATURE_SYSTEM_NAME =PROFICLASS-x.y	New value
REFERENCE_FEATURE_SYSTEM_NAME =RNTD-x.y	New value
REFERENCE_FEATURE_SYSTEM_NAME =RUS-x.y	New value
REVISION	New element
REVISION_DATE	New element
SOURCE_NAME	New element
SOURCE_URI	New element
TERM	New element
TERM_CONDITION	New element
TERM_EXPRESSION	New element
TERM_ID	New element

Change	Description of changes
VERSION	New element
VERSION_DATE	New element

History of changes Version 2005

Change	Description of changes
FORMULA_SOURCE	The sub-element **SOURCE_DESCR** was renamed to **SOURCE_NAME**.
FREF	This element was named **CLASSIFICATION_FEATURE_REF** in BMEcat 2005 final draft, now it is named **FREF**.
PARAMETER_DEFINITION	The sub-element **CLASSIFICATION_FEATURE_REF** was renamed to **FREF**.
PARAMETER_UNIT	The maximum length has been reduced from 600 characters to 60 characters.
SOURCE_NAME	This element was named **SOURCE_DESCR** in Version 2005 final draft, now it is named **SOURCE_NAME**. The maximum length has been reduced from 250 characters to 80 characters.

Overview of elements - order by appearance

Amount	Element name	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
1	|_ **FORMULAS**	-	-	-	-	2005fd
1	| |_ SEQUENCE	-	-	-	-	-
1..*	| | |_ **FORMULA**	-	-	-	-	2005fd
1	| | | |_ SEQUENCE	-	-	-	-	-
1	| | | | |_ **FORMULA_ID**	-	**dtSTRING**	60	-	2005fd
0..1	| | | | |_ **FORMULA_VERSION**	-	-	-	-	2005fd
1	| | | | | |_ SEQUENCE	-	-	-	-	-
1	| | | | | | |_ **VERSION**	-	**dtSTRING**	20	-	2005fd
0..1	| | | | | | |_ **VERSION_DATE**	-	**dtDATETIME**	-	-	2005fd
0..1	| | | | | | |_ **REVISION**	-	**dtSTRING**	20	-	2005fd
0..1	| | | | | | |_ **REVISION_DATE**	-	**dtDATETIME**	-	-	2005fd
0..1	| | | | | | |_ **ORIGINAL_DATE**	-	**dtDATETIME**	-	-	2005fd
0..1	| | | | |_ **FORMULA_NAME**	-	**dtMLSTRING**	100	Yes	2005fd
0..1	| | | | |_ **FORMULA_DESCR**	-	**dtMLSTRING**	250	Yes	2005fd
0..1	| | | | |_ **FORMULA_SOURCE**	-	-	-	-	2005
1	| | | | | |_ SEQUENCE	-	-	-	-	-
0..1	| | | | | | |_ **SOURCE_NAME**	-	**dtMLSTRING**	80	Yes	2005
0..1	| | | | | | |_ **SOURCE_URI**	-	**dtSTRING**	255	-	2005fd
0..1	| | | | | | |_ **PARTY_IDREF**	-	**dtSTRING**	250	-	2005fd
0..1	| | | | |_ **MIME_INFO**	-	-	-	-	-
1	| | | | | |_ SEQUENCE	-	-	-	-	-
1..*	| | | | | | |_ **MIME**	-	-	-	-	-
1	| | | | | | | |_ SEQUENCE	-	-	-	-	-
0..1	| | | | | | | | |_ **MIME_TYPE**	-	**dtSTRING**	30	-	-
1..1	| | | | | | | | |_ **MIME_SOURCE**	-	**dtMLSTRING**	255	Yes	-
0..1	| | | | | | | | |_ **MIME_DESCR**	-	**dtMLSTRING**	250	Yes	-
0..1	| | | | | | | | |_ **MIME_ALT**	-	**dtMLSTRING**	80	Yes	2005fd
0..1	| | | | | | | | |_ **MIME_PURPOSE**	-	**dtSTRING**	20	-	2005fd
0..1	| | | | | | | | |_ **MIME_ORDER**	-	**dtINTEGER**	-	-	-
0..1	| | | | |_ **FORMULA_FUNCTION**	-	-	-	-	2005fd
1	| | | | | |_ SEQUENCE	-	-	-	-	-
1..*	| | | | | | |_ **TERM**	-	-	-	-	2005fd
1	| | | | | | | |_ SEQUENCE	-	-	-	-	-
1	| | | | | | | | |_ **TERM_ID**	-	**dtSTRING**	20	-	2005fd
0..1	| | | | | | | | |_ **TERM_CONDITION**	-	**dtSTRING**	3000	-	2005fd
1	| | | | | | | | |_ **TERM_EXPRESSION**	-	**dtSTRING**	3000	-	2005fd
1	| | | | |_ **PARAMETER_DEFINITIONS**	-	-	-	-	2005fd
1	| | | | | |_ SEQUENCE	-	-	-	-	-
1..*	| | | | | | |_ **PARAMETER_DEFINITION**	-	-	-	-	2005
1	| | | | | | | |_ SEQUENCE	-	-	-	-	-
1	| | | | | | | | |_ **PARAMETER_SYMBOL**	-	**dtSTRING**	60	-	2005fd
1	| | | | | | | | |_ CHOICE	-	-	-	-	-
1	| | | | | | | | | |_ **PARAMETER_BASICS**	-	-	-	-	2005fd
1	| | | | | | | | | | |_ SEQUENCE	-	-	-	-	-
1..1	| | | | | | | | | | | |_ **PARAMETER_NAME**	-	**dtMLSTRING**	100	Yes	2005fd

Amount	Element name	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
0..1	| | | | | | | | | | |_ **PARAMETER_DESCR**	-	**dtMLSTRING**	250	Yes	2005fd
0..1	| | | | | | | | | | |_ **PARAMETER_UNIT**	-	**dtMLSTRING**	60	Yes	2005
1	| | | | | | | | | |_ **FREF**	-	-	-	-	2005
1	| | | | | | | | | | |_ SEQUENCE	-	-	-	-	-
1	| | | | | | | | | | | |_ **REFERENCE_FEATURE_SYSTEM_NAME**	-	**dtSTRING**	80	-	-
1	| | | | | | | | | | | |_ **FT_IDREF**	-	**dtSTRING**	60	-	-
0..1	| | | | | | | | |_ **PARAMETER_ORIGIN**	-	**dtMLSTRING**	6000	Yes	2005fd
0..1	| | | | | | | | |_ **PARAMETER_DEFAULT_VALUE**	-	**dtSTRING**	250	-	2005fd
0..1	| | | | | | | | |_ **PARAMETER_MEANING**	-	**dtSTRING**	20	-	2005fd
0..1	| | | | | | | | |_ **PARAMETER_ORDER**	-	**dtINTEGER**	-	-	2005fd
1	|_ **PRICE_FORMULA**	-	-	-	-	2005fd
1	| |_ SEQUENCE	-	-	-	-	-
1	| | |_ **FORMULA_IDREF**	-	**dtSTRING**	60	-	2005fd
0..1	| | |_ **PARAMETERS**	-	-	-	-	2005fd
1	| | | |_ SEQUENCE	-	-	-	-	-
1..*	| | | | |_ **PARAMETER**	-	-	-	-	2005fd
1	| | | | | |_ SEQUENCE	-	-	-	-	-
1	| | | | | | |_ **PARAMETER_SYMBOLREF**	-	**dtSTRING**	60	-	2005fd
1	| | | | | | |_ **PARAMETER_VALUE**	-	**dtSTRING**	250	-	2005fd

Overview of elements - alphabetical order

Element name	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
FORMULA	-	-	-	-	2005fd
FORMULA_DESCR	-	**dtMLSTRING**	250	Yes	2005fd
FORMULA_FUNCTION	-	-	-	-	2005fd
FORMULA_ID	-	**dtSTRING**	60	-	2005fd
FORMULA_IDREF	-	**dtSTRING**	60	-	2005fd
FORMULA_NAME	-	**dtMLSTRING**	100	Yes	2005fd
FORMULA_SOURCE	-	-	-	-	2005
FORMULA_VERSION	-	-	-	-	2005fd
FORMULAS	-	-	-	-	2005fd
FREF	-	-	-	-	2005
FT_IDREF	-	**dtSTRING**	60	-	-
MIME	-	-	-	-	-
MIME_ALT	-	**dtMLSTRING**	80	Yes	2005fd
MIME_DESCR	-	**dtMLSTRING**	250	Yes	-
MIME_INFO	-	-	-	-	-
MIME_ORDER	-	**dtINTEGER**	-	-	-
MIME_PURPOSE	-	**dtSTRING**	20	-	2005fd
MIME_SOURCE	-	**dtMLSTRING**	255	Yes	-
MIME_TYPE	-	**dtSTRING**	30	-	-
ORIGINAL_DATE	-	**dtDATETIME**	-	-	2005fd
PARAMETER	-	-	-	-	2005fd
PARAMETER_BASICS	-	-	-	-	2005fd
PARAMETER_DEFAULT_VALUE	-	**dtSTRING**	250	-	2005fd
PARAMETER_DEFINITION	-	-	-	-	2005
PARAMETER_DEFINITIONS	-	-	-	-	2005fd

Element name	Default value	Data type	Field length	Lang. specific	l.chg. in ver.
PARAMETER_DESCR	-	**dtMLSTRING**	250	Yes	2005fd
PARAMETER_MEANING	-	**dtSTRING**	20	-	2005fd
PARAMETER_NAME	-	**dtMLSTRING**	100	Yes	2005fd
PARAMETER_ORDER	-	**dtINTEGER**	-	-	2005fd
PARAMETER_ORIGIN	-	**dtMLSTRING**	6000	Yes	2005fd
PARAMETER_SYMBOL	-	**dtSTRING**	60	-	2005fd
PARAMETER_SYMBOLREF	-	**dtSTRING**	60	-	2005fd
PARAMETER_UNIT	-	**dtMLSTRING**	60	Yes	2005
PARAMETER_VALUE	-	**dtSTRING**	250	-	2005fd
PARAMETERS	-	-	-	-	2005fd
PARTY_IDREF	-	**dtSTRING**	250	-	2005fd
PRICE_FORMULA	-	-	-	-	2005fd
REFERENCE_FEATURE_SYSTEM_NAME	-	**dtSTRING**	80	-	-
REVISION	-	**dtSTRING**	20	-	2005fd
REVISION_DATE	-	**dtDATETIME**	-	-	2005fd
SOURCE_NAME	-	**dtMLSTRING**	80	Yes	2005
SOURCE_URI	-	**dtSTRING**	255	-	2005fd
TERM	-	-	-	-	2005fd
TERM_CONDITION	-	**dtSTRING**	3000	-	2005fd
TERM_EXPRESSION	-	**dtSTRING**	3000	-	2005fd
TERM_ID	-	**dtSTRING**	20	-	2005fd
VERSION	-	**dtSTRING**	20	-	2005fd
VERSION_DATE	-	**dtDATETIME**	-	-	2005fd