

WILLKOMMEN IM INTERNATIONALEN

MATERIAL DATEN
SYSTEM



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- Öffentliche IMDS-Seiten
- |
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- |
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- [Systemzugang]

Electrolytically coated Fasteners
including Bolts, Nuts, Washers

IMDS international Material Data System

Example: Screw M10x30 10.9 ISO 4017 e-plated with zinc and yellow chromate film

Mass calculation of the Screw

E.g. by using a production chart from the screw supplier or by weighing

Mass calculation of the e-plated (electrolytically precipitated) coating
by calculating the surface using DSV-Tool (Deutscher Schrauben Verband)
(found under FAQs on the IMDS-homepage www.mdsystem.com);
Mass calculation using density, thickness and surface area.

Mass calculation of the chromate film

Composition and surface weight of various chromate films are listed in IMDS. This may also be available from the coater.

Description of the material of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

Example: Screw M10x30 10.9 ISO 4017 e-plated with zinc and yellow chromate film

- **Mass calculation of the screw** **Result: 27,6 g**
for example by using a production chart from the supplier or weighing the uncoated screw
- This is the total mass of the base material:
(**“Standardmaterial for Fasteners <= FKL 12.9”** is listed in IMDS)
This material can be used for fasteners 8.8 and 10.9 as well

Search Criteria: Name=material for fast*,Origin=all,Version=current

Total records found: 1

No.	Name, >Symbol<	Trade name	Mat.-No.	ID / Version	Supplier
1	Material for Fasteners Propert...	Material for Faste...		68124 / 5	IMDS-Commit...

Description of the material of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

Ingredients

Material for Fasteners Property Class <=12.9 68124 / 5.00

Search View MDS Ingredients

Expand Collapse Filter

- Material for Fasteners Property Class <=12.9
 - carbon
 - phosphorus
 - sulphur
 - silicon
 - manganese
 - Chromium
 - Molybdenum
 - nickel**
 - Vanadium
 - aluminium
 - copper
 - tin
 - Boron
 - iron
 - Titanium

Type	Material (MDS)
ID/Version	68124 / 5.00
MDS Supplier	IMDS-Committee
Name	Material for Fasteners Property Class <=12.9
Tradename	Material for Fasteners (EN)
Material No.	
Symbol	
Classification	unalloyed, low alloyed
Norms/Standards	EN 20898-2 ISO 898-1
Inhouse Norms	
Supplier	Material for Fasteners Property Class <=12.9, made of unalloyed and low alloyed carbon steels.
Remark	Material can also be used for bolts, studs, washers, nuts. Chemical Composition see DIN EN 20898-2, DIN EN ISO 898-1. Only for standard parts!! Can not be used if the material is defined on the drawing.

This material can be used for fasteners 8.8 and 10.9 as well

Standard Material for bolts, studs, washers and nuts!

IMDS international Material Data System

Example: Screw M10x30 10.9 ISO 4017 e-plated with zinc and yellow chromate film

■ Surface area calculation

by using the DSV excel chart (found on the IMDS homepage under FAQs)



- ▶ How can hexavalent chromium (CrVI) in chromatized Zinc and Zinc Alloy coatings be estimated?
- ▶ Is there a general material for fasteners?

▼ How can fastener surfaces be calculated?

The surface is necessary for the calculation of the weight of coatings. The [attached Excel sheet](#) will facilitate the calculation of fastener surfaces for IMDS.


[TOP ▲]

- ▶ How can I put in data required for the Directive on the ELV (DIR 2000/53/CE) as easy and fast as possible (Cd, Cr (VI), Hg, Pb, hazardous substances)?

Description of the material of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

DEUTSCHER SCHRAUBENVERBAND E.V.
Calculation of Fastener Surfaces for the
INTERNATIONAL MATERIALDATASYSTEM (IMDS)

PRODUCT	INPUT		 Values only valid for IMDS !	OUTPUT
SCREW BOLT	Nominal Diameter [mm]	Length [mm]		Surface [cm ²]
	10	30		23,44
STUD	Nominal Diameter [mm]	Length [mm]		Surface [cm ²]
	6	10		2,33
NUT	Nominal Diameter [mm]	Width Across Flat [mm]		Surface [cm ²]
	6	10		4,42
WASHER	Outer Diameter [mm]	Inner Diameter [mm]	Height [mm]	Surface [cm ²]
	12	6	1,5	2,54

Result:
Surface of the
Screw
23,44 cm²

DSV-calculation tool for surface area of fasteners
(found on the IMDS-homepage under FAQs)

IMDS international Material Data System

Example: Screw M10x30 10.9 ISO 4017 e-plated with zinc and yellow chromate film

- **Mass calculation of the e-plated zinc coating**
using the density and component surface area
Surface (23.44 cm²) x Density (7.1 g/cm³) x thickness (10 µm=1x10⁻³ cm)
Result: 166 mg **e-plate Zn (electrodeposited Zinc Coatings)**
- **IMDS entry**
The e-plated (galvanically precipitated) standard coatings are listed in IMDS

Description of the coating mass of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

Search Criteria: Name=e-plate Zn*,Origin=all,Version=current

Total records found: 7

No.	Name, >Symbol<	Trade name	Mat.-No.	ID / Version	Supplier
1	e-plate Zn (electrodepos..., >Zn<-	-	-	213570 / 4	IMDS-Commit...
2	e-plate ZnCo (electr..., >Zn/Co< -	-	-	736158 / 2	IMDS-Commit...
3	e-plate ZnFe (electro..., >Zn/Fe<-	-	-	213579 / 3	IMDS-Commit...
4	e-plate ZnFeCo (... , >Zn/Fe/Co< -	-	-	736142 / 2	IMDS-Commit...
5	e-plate ZnNi(12..., >Zn/Ni(12-...< -	-	-	736126 / 2	IMDS-Commit...
6	e-plate ZnNi(6-8)..., >Zn/Ni(6-8)<-	-	-	213583 / 3	IMDS-Commit...
7	e-plate ZnNi(9-..., >Zn/Ni(9-1...< -	-	-	736101 / 2	IMDS-Commit...

Description of the material of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

e-plate Zn (electrodeposited Zinc Coatings) 213570 / 4.00

Search View MDS Ingredient

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Filter

e-plate Zn (electrodeposited Zinc Coatings)

- carbon
- nitrogen
- chlorine
- zinc

Type	Material (MDS)
ID/Version	213570 / 4.00
MDS Supplier	e-plate Zn (electrodeposited Zinc Coatings)
Name	e-plate Zn (electr (EN) ▾)
Tradename	(EN) ▾
Material No.	
Symbol	Zn
Classification	Zinc alloys
Norms/ Standards	
Inhouse Norms	
Supplier	
Remark	7,1 g/cm3; Standard Material for electrodeposited Zinc Coatings
Development	
Sample Report	<input type="checkbox"/>

Density can be
found here as well

Description of the material of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

Example: Screw M10x30 10.9 ISO 4017 e-plated with zinc and yellow chromate film

■ Chromate films of different types are listed in IMDS

Search Criteria: Name=chromate film*,Origin=all,Version=current

Total records found: 7

No.	Name, >Symbol<	Trade name	Mat.-No.	ID / Version	Supplier
1	<u>Chromate film black Zn</u>	-	-	899586 / 3	IMDS-Commit...
2	<u>Chromate film black ZnFe/ZnCo</u>	-	-	900844 / 3	IMDS-Commit...
3	<u>Chromate film black ZnNi</u>	-	-	900836 / 3	IMDS-Commit...
4	<u>Chromate film blue Zn/ZnFe/ZnNi-</u>	-	-	899505 / 3	IMDS-Commit...
5	<u>Chromate film clear/transparen...</u>	-	-	899555 / 3	IMDS-Commit...
6	<u>Chromate film oliv Zn/ZnFe/Zn...</u>	-	-	900850 / 3	IMDS-Commit...
→ 7	<u>Chromate film yellow Zn/ZnFe/...</u>	-	-	899343 / 3	IMDS-Commit...

Description of the material of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

Example: Screw M10x30 10.9 ISO 4017 e-plated with zinc and yellow chromate film

Chromate film yellow Zn/ZnFe/ZnNi 899343 / 3.00

Search View MDS Incred

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Filter

Chromate film yellow Zn/ZnFe/ZnNi

Chromium, ion (Cr 6+)

Chromium (III) ion

zinc

oxygen

Misc.

Type	Material (MDS)
ID/Version	899343 / 3.00
MDS Supplier	IMDS-Committee
Name	Chromate film yellow Zn/ZnFe/ZnNi
Tradename	<input type="text"/> (EN) ▼
Material No.	
Symbol	
Classification	Other compounds (e.g. friction linings)
Norms/ Standards	<input type="text"/>
Inhouse Norms	<input type="text"/>
Supplier	Data from DGO ▲ (Deutsche ▼)
Remark	Mass of the layer 0,9 g/m ² ; Chromatized Zinc and Zinc Alloy Coatings (made by solutions containing CrVI)

As defined in
Recommendation IMDS 008 the
„Chromate film“ contains CrVI!

unlike „Passivation“ treatments
are CrVI-free!

Mass of coatings
listed here as well!

Description of the material of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

Example: Screw M10x30 10.9 ISO 4017 e-plated with zinc and yellow chromate film

- **Mass calculation of the Chromate film yellow Zn/ZnFe/ZnNi**
by using the surface mass per unit area ($0,9\text{g/m}^2$) and the
component surface area ($23,44\text{ cm}^2$)
Mass of the layer (0.9 g/m^2) x Surface (23.44 cm^2)
Result: 2.11 mg “Chromate film yellow Zn/ZnFe/ZnNi”

Description of the material of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

**Example: Screw M10x30 10.9 ISO 4017 e-plated with zinc and yellow chromate film
Result in the IMDS**

Ingredients
Screw M10x30 DIN EN 24017 (Example) 274329 / 3.01

Search Copy MDS Ingredient

Expand Collapse Filter

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Screw M10x30 DIN EN 24017 (Example)

- Material for Fasteners Property Class <=12.9
- e-plate Zn (electrodeposited Zinc Coatings)
 - carbon
 - nitrogen
 - chlorine
 - zinc
- Chromate film yellow Zn/ZnFe/ZnNi
 - Chromium, ion (Cr 6+)
 - Chromium (III) ion
 - zinc
 - oxygen
 - Misc.

Type	Component (MDS)
ID/Version	274329 / 3.01
MDS Supplier	
Description	Screw M10x30 10.9 ISO 4017 (Example)
Part/Item No. (Author)	M10x30 10.9 ISO 4017
Measured Weight per Item	27.6 g
Tolerance	+/- 1 [%]
Calculated Weight per Item	27.66711 [g]
Deviation	0.243152 [%]
Development	

Description of the material of a Standard Screw e-plated with Zinc and yellow Chromate Film

IMDS international Material Data System

Specifications for passivation treatments:

- **Passivation treatments do not contain CrVI, unlike chromate treatments**
- **Passivation treatments are listed in IMDS**

Search Criteria: Name=passivation,Origin=own,Version=current

Total records found: 4

No.	Name, >Symbol<	Trade name	Mat.-No.	ID / Version	Supplier
1	<u>Passivation black ZnFe</u>	-	-	1222871 / 1	IMDS-Commit...
2	<u>Passivation black ZnNi</u>	-	-	1223017 / 1	IMDS-Commit...
3	<u>Passivation thick layer Zn/ZnFe...</u>	-	-	900896 / 2	IMDS-Commit...
4	<u>Passivation transp. Zn/ZnFe/Z...</u>	-	-	900924 / 2	IMDS-Commit...

 **Note on transparent passivation treatment:**

Coating may appear faintly red, blue or green due to refraction.

Specifikation for passivation treatments

IMDS international Material Data System

■ Different types of sealants are listed in IMDS

Search Criteria: Name=sealant*,Origin=all,Version=current

Total records found: 12

No.	Name, >Symbol<	Trade name	Mat.-No.	ID / Version	Supplier
1	Sealant inorg. (Sealant inorga...	-	-	974606 / 2	IMDS-Commit...
2	Sealant inorg./org PUR/PE (S...	-	-	976472 / 2	IMDS-Commit...
3	Sealant inorg./org. lubricated...	-	-	975042 / 2	IMDS-Commit...
4	Sealant inorg./org. PAK (Seal...	-	-	974826 / 3	IMDS-Commit...
5	Sealant inorg./org. PAK black...	-	-	977190 / 2	IMDS-Commit...
6	Sealant inorg./org. PAK lubric...	-	-	976386 / 2	IMDS-Commit...
7	Sealant inorg./org. PUR (Seal...	-	-	974954 / 2	IMDS-Commit...
8	Sealant org. PAK (Sealant or...	-	-	977552 / 2	IMDS-Commit...
9	Sealant org. PAK lubricated (...)	-	-	977768 / 3	IMDS-Commit...
10	Sealant org. PAK/PE (Sealant...	-	-	977617 / 2	IMDS-Commit...
11	Sealant org. PES (Sealant or...	-	-	977400 / 4	IMDS-Commit...
12	Sealant org. PES/CrIII (Sealan...	-	-	977589 / 4	IMDS-Commit...

- The assignment of a particular product to a certain sealant listed in IMDS can be inquired of the sealant supplier.

Specification of sealants