

C23D

ENAMELLING OF, OR APPLYING A VITREOUS LAYER TO, METALS (chemical composition of the enamels [C03C](#))

Definition statement

This place covers:

Processes for enamelling or for applying glass layers on metal.

Enamelling is here only the coating of metals with vitreous powders in dry form, in dispersion or mixed with a polymeric binder (e.g. transfer sheets) that will disappear during burning without leaving byproducts. The heat treatment is here to melt the powder and eventually to burn the carrier, when present.

The coating of metal with glass can be done by the same processes as enamelling, by coating with molten glass.

Relationships with other classification places

Enamel and glass compositions are classified in [C03C](#).

References

Limiting references

This place does not cover:

Enamel compositions	C03C 8/00
Glazes on ceramics	C04B 41/00
Organic coatings on metal	C09D , B05D
Ceramic coatings on metal	C23C 4/00 , C23C 24/00 , C23C 26/00 , C23C 28/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Layered products comprising a layer of metal	B32B 15/00
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Special rules of classification

Inorganic coatings on metal that are formed from the decomposition of precursors should be classified in [C23C 18/00](#) and subgroups (for example sol-gels on metal are not classified in [C23D](#)).

When the process is only characterized by the composition of one enamel layer, then it should be classified in the composition groups ([C03C 8/00](#) and subgroups).

Some documents disclose "cold enamels", these are considered as paints, and should be classified in relevant classes ([C09D](#), [B05D](#), ...).

Some documents disclose enamel on ceramics, these should be considered as glazes and not enamels, they should be classified in [C04B 41/00](#).

As silicon is not a metal (see CPC section [C](#)) no coating on silicon is classified in [C23D](#).

The invention features are classified with classes and additional information with corresponding codes.

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Chemical treatment of the metal surfaces prior to coating (cleaning and degreasing of metallic objects [C23G](#))

Definition statement

This place covers:

Pretreatment of metals when they are specific to enamelling.

References**Limiting references**

This place does not cover:

Pretreatment of metals when they are not specific to enamelling.	C23C , C23F , C23G
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{with refractory materials}

References**Limiting references**

This place does not cover:

Coating metals with ceramics	C23C
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Special rules of classification

Documents should be classified in [C23C 4/10](#) and [C23C 24/10](#). No new document in this group.

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Ovens specially adapted for firing enamels

Relationships with other classification places

Industrial oven should be classified in [F27B](#)