

Frit Classification System

- Group 1** Ceramic frits containing general elements that are not included in Annex I of Directive 67/548/EEC, such as Zr, Si, Al, Mg, Ca, K, Na, **etc***, **and without Pb, Ba, Zn and Cd.** **EXEMPTED**
- Group 2** Ceramic frits containing general elements that are not included in Annex I of Directive 67/548/EEC, such as Zr, Si, Al, Mg, Ca, K, Na, **etc***, **and with Zn and without Pb, Ba or Cd.** **EXEMPTED**
- Group 3** Ceramic frits containing general elements that are not included in Annex I of Directive 67/548/EEC, such as Zr, Si, Al, Mg, Ca, K, Na, **etc***, **and with Ba and without Pb, Zn or Cd.** **EXEMPTED**
- Group 4** Ceramic frits containing general elements that are not included in Annex I of Directive 67/548/EEC, such as Zr, Si, Al, Mg, Ca, K, Na, **etc***, **and with Zn and Ba and without Pb or Cd.** **EXEMPTED**
- Group 5** Ceramic frits containing general elements that are not included in Annex I of Directive 67/548/EEC, such as Zr, Si, Al, Mg, Ca, K, Na, **etc***, **and with Pb and without Cd.**
- **Group 5.1** Lead Bisilicates. **EXEMPTED**
 - **Group 5.2** Lead Borosilicates. **EXEMPTED**

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- Group 6** Ceramic frits containing general elements that are not included in Annex I of Directive 67/548/EEC, such as Zr, Si, Al, Mg, Ca, K, Na, **etc***, and with **Pb and Zn and/or Ba**. **EXEMPTED**
- Group 7** Ceramic frits containing general elements that are not included in Annex I of Directive 67/548/EEC, such as Zr, Si, Al, Mg, Ca, K, Na, **etc*** and with **Cd and some of the elements Zn, Ba, and Pb**. **EXEMPTED**
- Group 8** Ceramic frits containing Pb and/or Cd and containing general elements that are not included in Annex I of Directive 67/548/EEC (Zr, Si, Al, Mg, Ca, K, Na, **etc***) **that are not included in the other groups definition.**
- **Group 8.1** Lead Monosilicates ($0,05\% < \text{PbO} < 80\%$; $\text{SiO}_2 < 30\%$; $\text{Al}_2\text{O}_3 < 1\%$).
REGISTERED
 - **Group 8.2** Lead Borosilicates ($0,05\% < \text{PbO} < 80\%$; $\text{SiO}_2 < 30\%$; $\text{Al}_2\text{O}_3 < 0.5\%$; $\text{B}_2\text{O}_3 > 0\%$).
REGISTERED
 - **Group 8.3** Lead and cadmium frits ($0,05\% < \text{PbO} < 80\%$; $0\% < \text{CdO} \leq 5\%$; $\text{SiO}_2 < 30\%$; $\text{Al}_2\text{O}_3 < 1\%$ or $0,05\% < \text{PbO} < 80\%$; $5\% < \text{CdO} < 24\%$). **REGISTERED**

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Group 9 Coloured frits containing general elements that are not included in Annex I of Directive 67/548/EEC, such as Zr, Si, Al, Mg, Ca, K, Na, **etc*** and some metallic oxides included in Annex I of Directive 67/548/EEC.

- **Group 9.1: Ni frits** ($0.1\% < \text{NiO} \leq 3.8\%$). **REGISTERED**
- **Group 9.2: Ni frits** ($3.8\% < \text{NiO} < 15\%$). **REGISTERED**
- **Group 9.3: V frits** ($1\% < \text{V}_2\text{O}_5 < 15.5\%$). **REGISTERED**
- **Group 9.4: Cd frits** ($5\% < \text{CdO} < 28\%$). **REGISTERED**

***etc:** means the rest of the elements that are not listed in Annex I of the Directive 67/548/EEC.

Directive 67/548/EEC is referenced in all the subgroups because this is the legislation that is specifically cited in Annex V of the REACH Regulation. It should be clear that companies should consider the subsequent adaptations to technical progress (ATP) of this Directive, and any other legislation that may modify or replace this Directive in the future (Annex VI of 1272/2008 Regulation – CLP).

Amendments to the Exemption Report

Modification of previous Exempted Groups

An amendment to the exemption report has been prepared in order to clarify the composition requirements for frits to be exempted in groups 5, 6 and 7. The table below intends to clarify the compositions that can be included in each group.

Group	Limits (in % oxides) of selected oxides in frit composition						
	PbO	SiO ₂	Al ₂ O ₃	B ₂ O ₃	CdO	ZnO	BaO
1	0	-	-	0	0	0	0
2	0	≥ 30	≥ 1	0	0	> 0	0
	0	≥ 30	≥ 0.5	> 0 ≤ 34	0	> 0	0
3	0	≥ 30	≥ 1	0	0	0	> 0
	0	≥ 30	≥ 0.5	> 0 ≤ 34	0	0	> 0
4	0	≥ 30	≥ 1	0	0	> 0	> 0
	0	≥ 30	≥ 0.5	> 0 ≤ 34	0	> 0	> 0
5.1	> 0 ≤ 69	≥ 30	≥ 1	0	0	0	0
5.2	> 0 ≤ 69	≥ 30	≥ 0.5	> 0 ≤ 34	0	0	0
6	> 0 ≤ 69	≥ 30	≥ 1	0	0	> 0	
	> 0 ≤ 69	≥ 30	≥ 0.5	> 0 ≤ 34	0	> 0	
7	> 0 ≤ 69	≥ 30	≥ 1	0	> 0 ≤ 5	> 0	> 0
	> 0 ≤ 69	≥ 30	≥ 0.5	> 0 ≤ 34	> 0 ≤ 5	> 0	> 0

Limits for SiO₂ and Al₂O₃ are mandatory and first priority condition in Groups 2 to 7; the other elements can be combinable within the established limits, as long as limits for SiO₂ and Al₂O₃ are respected.

In the case that a frit contains SiO₂, Al₂O₃ **and** B₂O₃, the limit of Al₂O₃ can be lowered to 0.5% (see exemption condition on Group 10.0).

Amendments to the Exemption Report

New exempted frits

Some amendments to the exemption report have been prepared in order to clarify the composition requirements for frits to be exempted containing B, Se, Sb and Co. The table below intends to clarify the compositions that can be included in each group.

Group	Limits (in % oxides) of selected oxides in frit composition					
	SiO ₂	Al ₂ O ₃	B ₂ O ₃	Se	Sb ₂ O ₃	Co ₃ O ₄
10.0	≥ 30	≥ 0.5	> 0 ≤ 34	-	-	-
10.1	≥ 30	≥ 1	0	> 0 ≤ 1.5	-	-
	≥ 30	≥ 0.5	> 0 ≤ 34	> 0 ≤ 1.5	-	-
10.2	≥ 30	≥ 1	0	-	> 0 ≤ 2	-
	≥ 30	≥ 0.5	> 0 ≤ 34	-	> 0 ≤ 2	-
10.3	≥ 30	≥ 1	0	-	-	> 0 ≤ 2
	≥ 30	≥ 0.5	> 0 ≤ 34	-	-	> 0 ≤ 2

Limits for SiO₂ and Al₂O₃ are mandatory and first priority condition in all Groups; the other elements can be combinable within the established limits, as long as limits for SiO₂ and Al₂O₃ are respected.

In the case that a frit contains SiO₂, Al₂O₃ **and** B₂O₃, the limit of Al₂O₃ can be lowered to 0.5% (see exemption condition on Group 10.0).