

# 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.** **(to be updated soon)**
- **Group 5.1** Lead Bisilicates. **EXEMPTED**
  - **Group 5.2** Lead Borosilicates. **EXEMPTED**

# Frit Classification System

- 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 (to be updated soon)**
- 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 (to be updated soon)**
- 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**

# Frit Classification System

**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

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 <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	B <sub>2</sub> O <sub>3</sub>	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

To be updated soon

Limits for SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> 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 SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> are respected.

In the case that a frit contains SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub> **and** B<sub>2</sub>O<sub>3</sub>, the limit of Al<sub>2</sub>O<sub>3</sub> 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, Co, Mn and Cu.

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 <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	B <sub>2</sub> O <sub>3</sub>	Se	Sb <sub>2</sub> O <sub>3</sub>	Co <sub>3</sub> O <sub>4</sub>	MnO <sub>2</sub>	CuO
10.0	≥30	≥0.5	0 < x ≤34					
10.1	≥30	≥1		0 < x ≤1.4				
	≥30	≥0.5	0 < x ≤34	0 < x ≤1.4				
10.2	≥30	≥1			0 < x ≤1.7			
	≥30	≥0.5	0 < x ≤34		0 < x ≤1.7			
10.3	≥30	≥1				0 < x ≤1.64		
	≥30	≥0.5	0 < x ≤34			0 < x ≤1.64		
10.4	≥30	≥1					0 < x ≤23.6	
	≥30	≥0.5	0 < x ≤34				0 < x ≤23.6	
10.5	≥30	≥1						0 < x ≤23.7
	≥30	≥0.5	0 < x ≤34					0 < x ≤23.7

Limits for SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> are mandatory and first priority condition in all Groups; the other elements can be combinable within the established limits, as long as limits for SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> are respected.

In the case that a frit contains SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub> **and** B<sub>2</sub>O<sub>3</sub>, the limit of Al<sub>2</sub>O<sub>3</sub> can be lowered to 0.5% (see exemption condition on Group 10.0).