

## Lead-Free Ferro Frits: Analysis

Stock?	Frit	Cone	K <sub>2</sub> O	Na <sub>2</sub> O	CaO	MgO	BaO	ZnO	B <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	ZrO <sub>2</sub>	F	Expan.
Yes.....	3110	07	2.5	15.4	5.2	0.8			2.8	3.7	69.60			10.1
Yes.....	3124	05	0.6	5.6	14.5				12.5	10.0	56.80			7.9
Yes.....	3134	07		10.2	20.1				23.2		46.50			9.6
Disc.....	3185	??		1.0					0.43		7.27			-
Yes.....	3195	05		12.7	11.3				15.8	12.5	47.60			6.4
	3240	05	0.6	4.5	8.8		7.9	15.8	10.0	0.9	39.50	10.2		-
Yes.....	3269	07	10.0	11.2					17.1	12.8	48.90			11.0
	3270	??	0.159	0.380	0.461				0.648	0.232	2.340			-
	3278	03		15.5	6.8				21.8		56.20			9.7
Disc.....	3289	07		5.5			27.4		12.4	5.4	49.30			-
	3293	05		16.7	0.2	0.8				5.9	76.40			-
Yes.....	5301	05	5.1	19.2	2.3				11.7	11.3	41.80		8.6	11.4
Yes.....	CC270	1500°F	x 2	x 15	x 3			8.3	x 11	x 4	x 50	1.0		11.0
Yes.....	FA233	1650°F	>10		10-15			2.0	15-25	7-10	7.50	10-20		7.0

## Fusion Frits: Analysis

Stock?	Frit	Cone	K <sub>2</sub> O	Na <sub>2</sub> O	CaO	MgO	BaO	ZnO	B <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	ZrO <sub>2</sub>	Li <sub>2</sub> O	Expan.
	F2	1600°F	3.7	3.0	10.5				20.3	13.5	49.0			7.19
	F12	1450°F		10.4	20.0				23.8	0.8	45.0			8.18
Yes.....	F15	1675°F	3.6	2.6					23.0	3.8	67.0			4.42
Yes.....	F38	1550°F		5.5	4.2	16.8 *			15.0	4.2	53.1	1.20		6.18
Yes.....	F69	1700°F				12.8			30.2	12.5	44.5			3.96
Yes.....	F75	1550°F	2.1	15.3	6.4				2.5	3.7	70.0			9.30
	F280	1550°F	0.6	7.0	14.2				15.0	8.5	54.8			7.90
Yes.....	F403	1825°F		0.5	4.8		35.0		1.5	6.2	49.0	3.0		6.92
Yes.....	F413	1600°F		17.0	0.5					5.5	76.5			8.67
Yes.....	F493	1300°F	6.0	11.7					13.2	6.3	51.8		11.0	14.13
Yes.....	F499	1600°F	21.0						28.4	7.2				9.46
Yes.....	F524	1800°F	2.6	2.1	7.3	7.6 *	2.0		12.0	9.5	56.9			5.17
Yes.....	F537	>1850°F		2.0	28.0				10.0	3.0	57.0			7.70
Yes.....	F567	1450°F	5.61	12.95	0.24				24.01	11.41	48.78			9.14
Yes.....	FZ14	1600°F	3.0	10.0	6.5			10.0	5.0	14.0	51.5			9.53
Yes.....	FZ24	1450°F	8.0	14.7	3.0		1.4	2.20	6.2	10.0	54.5			11.13
Yes.....	FZ376A	1700°F	2.8	4.6	6.0			1.10	13.2	7.6	56.2	8.50		6.54
Yes.....	FZ556	1800°F	1.0	4.0		21.1 *	15.0			12.0	47.6	8.50		8.50
Yes.....	FZ557	1800°F	4.7	0.3	11.0	2.5	0.8	11.0	4.5	5.5	59.7			6.63
Yes.....	FZ565	1550°F	0.5	5.8	13.5	0.5		11.20	1.5	8.5	58.5			7.78
	G8149			5.0	24.0				32.0		24.5			

(\* Bold & star indicates value is for STRONTIUM OXIDE.)

## Oxide Effects on Surface Tension

### Highest Surface Tension

- |                 |                   |                 |                   |                  |
|-----------------|-------------------|-----------------|-------------------|------------------|
| 1..... Alumina  | 4..... Calcia     | 7..... Strontia | 10... Titania     | 13... Lead Oxide |
| 2..... Magnesia | 5..... Tin Oxide  | 8..... Baria    | 11... Boric Oxide | 14... Soda       |
| 3..... Zirconia | 6..... Zinc Oxide | 9..... Silica   | 12... Lithia      | 15... Potash     |

### Lowest Surface Tension