High advanced

SOLDER GLASS

for
Several Applications

TELUX

TELUX Spezialglas GmbH
Weißwasser
Germany

TELUX
Spezialglas GmbH

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Group	TELUX Solder Glass Type	TELUX Specification
Crystallizing glass composites	L 98 FF SST VL 125	WN 34-300 WN 34-400
Not Crystallizing glass composites	VL 88 C VL 85 C VL 73 C	WN 34-500 WN 34-501 WN 34-502

Factory Standard

TELUX Spezialglas GmbH Weißwasser	Glass and glass products **Solder glass L98FF SST** Technical specification of supply	WN 34 - 300 Edition: 03.04 Replacement for Edition: ———
Customers specific dates: Customers name: Customers marking: Customers Code:		Date of the German Edition: 31.03.2004 Date of the English Edition: 31.03.2004

Binding from: 01.04.2004

Solder glass L 98 Fast Frit / Short Soak Time is a high-lead-containing, low melting and when thermal treated crystallizing glass composit, mainly used for soldering of glass parts by production of picture tubes.
The application of the composit is done by mixing with a vehicle (Butyl- or Amylacetat and Nitrocellulose).
By heating up to the soldering temperature not less than 430°C and a holding time not less than 20 minutes a vacuum-tight, mechanical solid connection with glass parts develops.
The recovery of soldered glass parts is possible by solution of the solder glass in diluted nitric acid.

1 Technical specification

Properties		Symbol	Dimension	Value	Tolerance
Flow property (button flow test), sample diameter (440°C /60')		-	mm	27,0	± 0,5
Residual strain against standard glass		-	nm/cm	90	± 40
Time of crystallization (440°C)		t_c	Minutes	14,0 - 16,0	-
Transition temperature		T_u	°C	320	± 10 K
Softening temperature		T_{soft}	°C	380	± 10 K
Moisture		-	%	0,05	max.
Grain size	≤ 40 µm	-	%	70,0	min.
	≤ 63 µm			80,0	min.
	≥ 100 µm			4,0	max.
	≥ 125 µm			0,8	max.
Density		d	g/cm^3	6,4(*)	-

(*) Recommended value to information

Table 1

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Confirmed at: 31. März 2004	Manufactory no.: -

TELUX Spezialglas GmbH Weißwasser	Glass and glass products **Solder Glass VL125** Technical specification of supply	WN 34 - 400 Edition: 02.10 Replacement for Edition: ———
Customers specific dates: Customers name: Customers marking: Customers Code:		Date of the German Edition: 22.02.2010 Date of the English Edition: 22.02.2010

Binding from:

VL125 is a high-lead-containing, low melting solder glass. After an intensive milling process will delivered the solder glass as powder within a µm grain size.

This frit glass is used for the production of dye solar modules.

1 Technical specification

Properties		Symbol	Dimension	Value	Tolerance
Color		without colour addition			
Transformation temperature		T_g	°C	340 (*)	-
Moisture		-	%	0,05 (*)	-
Grain size	≤ 5 µm	-	%	22,0 (*)	-
	≤ 20 µm			45,0 (*)	-
	≤ 63 µm			83,0 (*)	-
	≥ 100 µm			7,0 (*)	-
	≥ 160 µm			0,0 (*)	-
Average linear thermal expansion by 20-300 °C		α	10^{-6} K^{-1}	12,59 (*)	-

(*) Recommended value to information

Table 1

Confirmed at: 22.Feb. 2010

Article No.: 08-000-SOL

TELUX Spezialglas GmbH Weißwasser	Glass and glass products **Solder Glass VL88 C** Technical specification of supply	WN 34 - 500 Edition: 02.10 Replacement for Edition: ———
Customers specific dates: Customers name: Customers marking: Customers Code:		Date of the German Edition: 22.02.2010 Date of the English Edition: 22.02.2010

Binding from: 01.03.2010

VL88 C is a high-lead-containing, low melting and with thermal treatment not-criystallizing glass-composit. It consists of a glasmatrix of the system $PbO - B_2O_3$ and a disperse phase (filler).

The glassmatrix and the filler will grind together and delivered as powder.

This frit glass – Composit is used for vacuum-sealed glass conections.

1 Technical specification

Properties	Symbol	Dimension	Value	Tolerance
Color	yellowish - ocher			
Transformation temperature	T_g	°C	316 (*)	-
Moisture	-	%	0,05 (*)	-
Average linear thermal expansion by 20-300 °C	α	$10^{-6}K^{-1}$	8,8	± 0,15
Processing temperature	-	°C	410 - 420	
Grain size ≤ 20 µm	-	%	70,0 (*)	-
Grain size ≥ 63 µm	-	%	max. 10,0 (*)	-

(*) Recommended value to information

Confirmed at: 22.Feb. 2010

Article No.: 08-015-SOL

Factory Standard

TELUX Spezialglas GmbH Weißwasser	Glass and glass products **Solder Glass VL85 C** Technical specification of supply	**WN 34 - 501** Edition: 02.10 Replacement for Edition: ———
Customers specific dates: Customers name: Customers marking: Customers Code:		Date of the German Edition: 22.02.2010 Date of the English Edition: 22.02.2010

Binding from: 01.03.2010

VL85 C is a high-lead-containing, low melting and with thermal treatment not-criystallizing glass-composit. It consists of a glasmatrix of the system PbO – B_2O_3 and a disperse phase (filler).

The glassmatrix and the filler will grind together and delivered as powder.

This frit glass – Composit is used, for example, for the vacuum-sealed assembly for glass and metal.

1 Technical specification

Properties	Symbol	Dimension	Value	Tolerance
Color	yellowish - ocher			
Transformation temperature	T_g	°C	314 (*)	-
Moisture	-	%	0,05 (*)	-
Average linear thermal expansion by 20-300 °C	α	$10^{-6}K^{-1}$	8,5	± 0,15
Processing temperature	-	°C	410 - 420	
Grain size ≤ 20 µm	-	%	70,0 (*)	-
Grain size ≥ 63 µm	-	%	max. 10,0 (*)	-

(*) Recommended value to information

Confirmed at: 22. Feb. 2010

Article No.: 08-010-SOL

TELUX Spezialglas GmbH Weißwasser	Glass and glass products **Solder Glass VL73 C** Technical specification of supply	WN 34 - 502 Edition: 02.10 Replacement for Edition: ———
Customers specific dates: Customers name: Customers marking: Customers Code:		Date of the German Edition: 22.02.2010 Date of the English Edition: 22.02.2010

Binding from: 01.03.2010

VL73 C is a high-lead-containing, low melting and with thermal treatment not-criystallizing solder glass composit. It consists of a glasmatrix of the system $PbO - B_2O_3$ and a disperse phase (filler).

The glassmatrix and the filler will grind together and delivered as powder.

This solder glass is used for the vacuum-sealed glass compounds.

1 Technical specification

Properties	Symbol	Dimension	Value	Tolerance
Color	yellowish - ocher			
Transformation temperature	T_g	°C	318 (*)	-
Moisture	-	%	0,05 (*)	-
Average linear thermal expansion by 20-300 °C	α	$10^{-6}K^{-1}$	7,3	± 0,2
Processing temperature	-	°C	380 - 430	
Grain size ≤ 20 µm	-	%	70,0 (*)	-
Grain size ≥ 63 µm	-	%	max. 10,0 (*)	-

(*) Recommended value to information

Confirmed at: 22.Feb. 2010

Article no.: 08-020-SOL

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