Technical terms of supply



NAFVSM B.V.
Plant Nijmegen, Netherlands

and

NAFVSM S.A.S.
Plant Andeville, France

NAFVSM B.V.
Marialaan 108, 6541 RP Nijmegen, Netherlands
tel +31-24-377.46.70,
www.naf-vsm.com, e-mail:info.nl@naf-vsm.com

NAFVSM S.A.S.
Zone Industrielle, F-60570 Andeville, France
Tel+33-3-44.52.64.90,
www.naf-vsm.com, e-mail:info.fr@naf-vsm.com

D1. Physical and chemical data Fiolax clear and amber, Illax amber and AR clear

Physical data:	**FIOLAX®-clear**	**FIOLAX®-amber**	**ILLAX®**	**AR®**
Medium coefficient of linear expansion between 20 and 300 °C $\alpha_{20/300}$ [10^{-6} . K^{-1}]	4.9	5.4	7.8	9.1
Transformation Temperature T_g [°C]	565	550	535	525
Temperature T [°C] of the glass at viscosity η [dPa.s] 10^{13} upper annealing temp. $10^{7.6}$ softening point 10^{4} working temperature	 565 785 1160	 560 770 1165	 540 720 1050	 530 720 1040
Refractive index n_d (λ = 587.6 nm)	1.492	1.523	1.521	-
Density ρ [g . cm^{-3}]	2.34	2.42	2.50	2.50

Chemical data:	**FIOLAX®-clear**	**FIOLAX®-amber**	**ILLAX®**	**AR®**
Main components [approx. Weight %]				
SiO_2	75	70	67	69
B_2O_3	10.5	7	5	1
Al_2O_3	5	6	7	4
Fe_2O_3	-	1	2	-
Na_2O	7	7	12	13
K_2O	-	1	1	3
BaO	-	2	< 0.5	2
CaO	1.5	< 1	1	5
MgO	-	-	-	3
TiO_2	-	5	-	-
MnO_2	-	-	5	-
Water resistance acc. DIN ISO 719	1	1	2	3
Acid resistance acc. DIN 12 116 and DIN ISO 1776	1	1	2	1
Alkali resistance acc. ISO 695	2	2	2	2

Source: PT_TTS_1001+1002+1004+1009 GB Business Unit Tubing / 9 / 2017 (190307)
Supersedes: SCHOTT TLB 2009, Technical terms of supply for special glass tubing for the manufacture of pharmaceutical containers 151012

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H7. Certificate of conformity glass tubing Schott (AR)

Mitterteich, 2019-01-17

CERTIFICATE

We hereby certify for **AR-GLAS® (glass 8350) batch 8350F019** following values:

Hydrolytic resistance (glass grains test):

Acc. to	Value	Limit	Unit	Result
ISO 719	**163**	HGB 3 ≤ 264	µg Na_2O / 1 g glass	**HGB 3**
ISO 720	**345**	HGA 2 ≤ 527	µg Na_2O / 1 g glass	**HGA 2**
Ph. Eur. 3.2.1	**0.553**	Type II and III ≤ 0.85	ml 0.02 M HCl / 1 g glass	**Type III**
USP <660>	**0.553**	Type II and III ≤ 0.85	ml 0.02 M HCl / 1 g glass	**Type III**

All measurements according to the current edition / version of the respective reference.

SCHOTT AG
Business Unit Tubing
Site Mitterteich

Director Analytical Services

Dr.-Ing. Brigitte Hueber

SCHOTT AG
Business Unit Tubing
Site Mitterteich

Director Quality Management

Dr.-Ing. Karsten Hennig

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SCHOTT
glass made of ideas

NAFVSM B.V.
Marialaan 108, 6541 RP Nijmegen, Netherlands
tel +31-24-377.46.70,
www.naf-vsm.com, e-mail:info.nl@naf-vsm.com

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