

### Water-Based Liquid Chalk for Fibre Reservoir Markers

#### General Information

Our Glassboard Marker Inks of Dokumental® GB 79xx series are liquid chalks. They can be easily dry-erased from many smooth surfaces, preferably glass, whiteboards and smooth black boards. The most unique aspect of these water based and highly pigmented inks is, that they are suitable to be used in fibre reservoir markers. So writing with these inks on presentation boards does not require pumping a valve action system like conventional inks for this purpose.

The cap-off time is up to 2 hours (except Dokumental® GB 7910 black: 0.5 hours). The drying time is about 90-120 seconds.

#### Suitable Surfaces

For many non-porous surfaces like glass, whiteboards (e.g. enamel, melamine). Suitable also for smooth surfaces made from Polycarbonat and Polymethylmethacrylat (PMMA, e.g. Plexiglas®). Other materials should be carefully tested.

#### Applicable Standards & Regulations on request

#### Physical Data

Type	Colour	Viscosity at 20°C mPa s	Surface tension mN/m ± 2.0	Density at 20°C g/cm <sup>3</sup> ± 0.02	pH-Value ± 1.0
Dokumental® GB 7901.1	fluo sky blue	12.5 +/- 0.5	29.0	1.22	7.7
Dokumental® GB 7910	black	23.0 +/- 2.0	29.0	1.10	7.0
Dokumental® GB 7921.1	fluo bright red	12.5 +/- 0.5	29.0	1.29	7.7
Dokumental® GB 7931.1	fluo yellow-green	12.5 +/- 0.5	29.0	1.29	7.7
Dokumental® GB 7941.1	violet	12.5 +/- 0.5	29.0	1.24	7.7
Dokumental® GB 7961.1	fluo yellow	12.5 +/- 0.5	29.0	1.29	7.7
Dokumental® GB 7966.1	fluo orange	12.5 +/- 0.5	29.0	1.29	7.7
Dokumental® GB 7971.1	fluo pink	12.5 +/- 0.5	29.0	1.27	7.7
Dokumental® GB 7980.1	white	17.0 +/- 1.0	31.0	1.39	7.7

#### Technical Advice

##### Suitable Components

Nibs: Polyester, High Porosity (e.g. Aubex JO454SF, Porosity 71%)

For other optimized nibs please also revert to Teibow and Aubex.

Fibre Reservoir: Polyester, fiber density about 0,16 g/cm<sup>3</sup> or lower, (further fibre reservoirs densities need to be tested)

Barrels, Caps, Plugs: Polypropylene, Polyethylen

It is mandatory to approve the compatibility of the ink and the components as well as the performance of the writing system.

Before use of our product the filling station has to be maintained and cleaned carefully. The inks are sensitive to any kind of contamination (e.g. chemical or microbial contaminations). Cross-contamination of the inks may lead to a colour mismatch or will even lead to a defective marker or shorter shelf life.

The inks contain biocides to prevent microbial growth, but for best protection we additionally recommend to ensure best hygienic conditions in production areas as well as cleanliness of all marker components.

##### Storage, Handling & Transportation

Store our product frost protected and avoid direct sunlight. The recommended storage temperature is between 10°C and 30°C. Storage temperatures of above 30°C for several days bear the risk of a reduced shelf life of the ink. Horizontal storage of the markers is recommended. Storage with tip up may lead to temporarily pale writing.

The shelf-life of the ink in originally sealed containers under optimal storage conditions is 9 months.

##### Processing Instructions

###### Pigment settling and redispersing the pigment in bulk ink

GB 79xx.1 is a highly pigmented ink for reservoir markers. Due to the high pigment load and the high density of the pigments the inks show strong pigment settling during bulk ink storage. The settled pigment forms a hard and sticky layer at the bottom of the container. Before using the ink the settled pigment must be stirred up completely to obtain a ready-to-use ink..

For this, use a cowles blade mixer with a 15 cm diameter tooth blade. Place the tooth blade just about 1 or 2 inches above the sticky sediment. Then start the mixer at low speed and increase

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speed within 2 or 3 minutes to 400 rpm (circumferential speed  $\approx$  3.2 m/s). Higher speed may lead to strong foam formation. It is better to stir at 400 rpm for a longer time to avoid foam formation instead of stirring at a very high speed, which creates much foam.

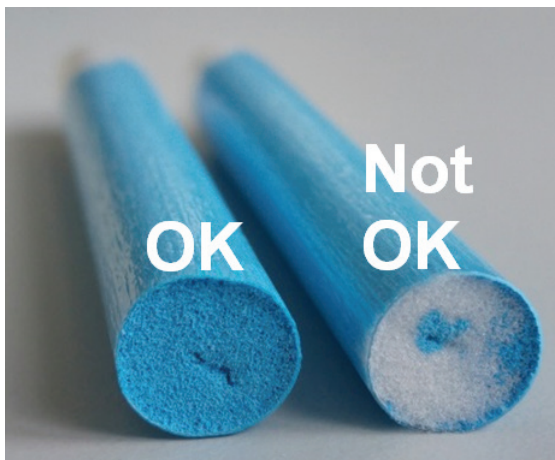
After about 45 minutes switch off the mixer and check sediment at the bottom (using a clean stick). In case there is still sediment at the bottom, place the tooth blade deeper and closer to the remaining sediment. Stir again (with patience at about 400 rpm) until all sediment has been mixed up. If necessary repeat this procedure until all pigment has been redispersed. Make sure that all sediment has been agitated before processing the ink.

If the ink is stocked again after having been stirred up, pigment settling will occur again. During the first 3 to 4 weeks the settled pigment stays soft and smooth and the stirring up will be much easier. After longer storage times the sediment gets harder and stickier, but following the above procedure will reliably redisperse the pigment again.

In case the stirring should lead to strong foam formation, the inks must rest for 1 day to allow the foam to collapse. **DO NOT FILL FOAMY INK TO MARKERS** (this will lead to poor writing performance) On the next day – when the foam has vanished - the ink can be stirred up easily without building up new foam.

#### Ink Injection to Reservoir

We recommend low density reservoirs like Porex XPE 433731 (fiber density is 0.16) and a porous nib like Aubex JO 454 SF. The filling ratio of the reservoir should be around 80 to 70 % of the maximum filling quantity. The reservoir must be filled with high saturation at the nib side. This means that after the ink injection the nib side of the reservoir must be well wetted with coloured ink (not colourless “ink serum”).



Then pierce in the nib and apply cap. Immediately after that place the assembled marker in nib down position for at least 1 hour, to make sure that the nib is inked up well. It is mandatory for our customers to make own ink flow investigations to find out the optimum filling process for best writing quality of the marker.

#### Packaging

standard packaging: 25kg hobbock (further packaging units on request).

#### Produced by

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