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Technical Data Sheet
Easyfluidal®.1 Ball Pen Inks

Ultra Low Viscosity Ball Pen Inks

General Information
The inks of Series Easyfluidal®.1 represent a new generation of ball pen inks, which offer an outstanding new combination of properties:

- No static leaking despite the very low viscosity of the inks. Therefore the inks are usable in retractable ball pens
- Easy, immediate starting
- Very soft, agreeable writing

Suitable Surfaces
All kind of papers

Applicable Standards & Regulations on Request

Physical Data

Type	Colour	Lightfastness (ISO 12757)	TF	Viscosity at 20°C mPa s ± 150	Surface tension mN/m	pH-Value
Easyfluidal®.1 black	black	Part I	yes	850	> 35	7.0 - 9.0
Easyfluidal®.1 violet blue	violet blue	Part I	yes	600	> 34	7.0 - 9.0
Easyfluidal®.1 red	red	Part I	yes	800	> 35	7.0 - 9.0
Easyfluidal®.1 green	green	Part I	yes	700	> 34	7.0 - 9.0

ISO 12757: Ball point pens and refills - Part I: General use, Part II: Documentary use, TF: Transparent Flux (clear drain in suitable refills when used in combination with Dokumental® IF 4312 ink follower)

Technical Advice
Suitable Components
EASYFLUIDAL®.1 inks need specially adjusted ballpen tips in order to achieve the optimal possible performance. Brass and BNP tips are not suitable.

All inks are suitable for plastic refill tubes. Brass tubes are not suitable. BNP tubes are only suitable if they are completely nickel plated on the inside.

The usage of an ink follower (IF 4312 or IF 4311) is strongly recommended for all refills. For further information about our ink followers see the Dokumental® IF 43xx technical data sheet

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

Storage, Handling & Transportation
Before use of our product the filling station has to be maintained and cleaned carefully. The inks are sensitive to any kind of contamination. Cross-contamination of the inks may lead to a colour mismatch or will even lead to a defective refill or shorter shelf life.
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.

After usage the drums have to be closed again tightly.
The shelf life of the inks in original sealed containers is 2 years.

Even more than other inks, the shelf life of EASYFLUIDAL®.1 refills is depending on the components and the storage conditions. If all suggestions are considered a shelf life of well above one year can be obtained.

Warehousing should be under dry and cool conditions. In order to minimize the water absorption of the inks, it is necessary to hot melt seal the tips and to apply DOKUMENTAL® IF 43xx ink follower. This will result in a maximized in-warehouse shelf life. However, the supply chain should be kept short to reduce the time until the pens are sold to the end consumer.

All components should fit tightly and the tube walls should be thick enough in order to reduce the absorption of humidity through the plastic material to a minimum. Furthermore the suitability of the eventually used adapter and the used alloy composition of the tip needs to be tested and approved. Different quality of alloy might have an effect on the shelf life of the refill.

Owing to the new chemistry of EASYFLUIDAL®.1 inks, test conditions that have been developed for other writing systems like Gel or Ball Pens, may not be directly applicable.

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EASYFLUIDAL®.1 inks can be handled and filled at room temperature. No heating during refill production is necessary.
Owing to very low viscosity, only modest centrifugation is needed to remove air bubbles.

Packaging
standard packaging: 20kg plastic canister (further packaging units on request).

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