



## AVAILABILITY - PRICES

*valid from January 2019*

### Production of Certified Reference Substances for the Metrological Unit

## LIQUID DENSITY

*Prices given in the table are net prices including DKD Calibration Certificate and packing.*

<b>Density Reference Liquid</b> <i>(Values / guidelines for at 20 °C in kg/m<sup>3</sup>)</i>	<b>Order no.</b>	<b>Price for 5 ml</b> <i>(Measuring temperature 20°C) in EURO</i>	<b>Price for 10 ml</b> <i>(Measuring temperature 20°C) in EURO</i>
690	RF 10	38.00	58.00
720	RF 15	38.00	58.00
816	RF 20	38.00	58.00
820	RF 50	38.00	58.00
827	RF 100	38.00	58.00
873	RF 200	38.00	58.00
998	RF 300	38.00	58.00
1250	RF 400	38.00	58.00
1620	RF 500	38.00	58.00

Surcharge for each additional measuring temperature (15°C up to 50°C): **20.- EURO.**

On customer request we offer the calibration certificates also electronically, they will be sent by e-mail.

# PRODUCTINFORMATION

## Density Reference Liquids

Calibration laboratory for length, electrical, mechanical, thermodynamic and analytical measurands

DAkKS Registration Number: **D-K-15186-01-00**

According to the International System of Units (SI) **density** is a derived unit, it is defined as quotient of mass  $m$  of a substance and its volume  $V$ . The SI Unit of density is  $\text{kg/m}^3$ .

Generally density figures refer to a reference temperature of  $20^\circ\text{C}$  (according to International Temperature Scale ITS-90).

Reference liquids of density are used to achieve quality assurance for calibration of density measuring devices, i.e. flexural resonator measuring devices, in all sectors of chemical and pharmaceutical industry as well as in other industry.

***Our DAkKS Calibration Laboratory D-K-15186-01 ensures the metrological traceability to PTB via reference standard measuring equipment basing on the principle of Archimedes after the hydrostatic weighing process.***

***This absolute method enables the direct metrological traceability to the National Standard kept at Physikalisch-Technische Bundesanstalt (PTB), Braunschweig and Berlin via density standard ball.***

***The flexural resonator measuring method (viscometer of oscillating type) is applied for controlling the quality of the density reference liquids..***

Our certified density reference liquids are available in ranges as follows (*Guidelines in  $\text{kg/m}^3$  at  $20^\circ\text{C}$* ):

<b>Density Reference Liquid</b> ( <i>Guidelines for the density in <math>\text{kg/m}^3</math></i> )	<b>690</b>	<b>720</b>	<b>816</b>	<b>820</b>	<b>827</b>	<b>873</b>	<b>998</b>	<b>1250</b>	<b>1620</b>
<i>Measuring uncertainty <math>U</math> in <math>\text{kg/m}^3</math> for the density determination at the reference standard measuring equipment</i>	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
<i>Measuring uncertainty <math>U</math> in <math>\text{kg/m}^3</math> for the provision of density reference liquids <sup>*)</sup></i>	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03

<sup>\*)</sup> The measuring uncertainty includes the influences by correct transport and storage.

The density value at  $20^\circ\text{C}$  is given in the **DAkKS Calibration Certificate**. On request determination and indication of density at  $15^\circ\text{C}$ ,  $25^\circ\text{C}$ ,  $30^\circ\text{C}$ ,  $40^\circ\text{C}$  und  $50^\circ\text{C}$  is possible for additional charge.

**Availability:** 5 ml, 10 ml

The density reference liquid has to be kept dry and in the dark in the unopened ampoule. It should be used within **2 months** from the date of calibration given on the label. After opening the ampoule the density reference liquid has to be used immediately and one time only.