

The true all-rounder DMA™ 501

Relevant for: Industries in need of a flexible three digit density meter for fast and accurate density checks in the lab or near a production line.

The compact DMA™ 501 density and concentration meter is designed to be operated with equal ease of use in a laboratory and near a production line or storage tank for doing quick density checks.



1 Introduction

The compact DMA™ 501 density and concentration meter copes with countless different sample types, including those with challenging characteristics such

as pasty, inhomogeneous, and sedimenting samples as well as samples containing particles or even aerosol sprays. The viscosity influence on the result is automatically corrected.

The compact DMA™ 501 density and concentration meter is especially handy when different kinds of sample are on the daily agenda.

Filling volume control, concentration checks, or quick routine quality control on an intermediate product: all measurements are performed with one instrument.

All relevant concentration tables and formulas for calculation of product-specific parameters are installed. Results are given in the appropriate unit.

Applications include

- chemicals (acids & bases, solvents, paints & varnishes),
- food (sauces, salad dressings),
- cosmetics (shampoo, creams, toothpaste, sprays), and
- petroleum samples (lubricants, fuels, crude oil)

as can be seen in **Table 1** to **Table 5**.

2 Applications

2.1 Liquid samples

Table 1: Liquid samples with low viscosity

Industry	Sample	Result at 20 °C [g/cm ³]	Repeatability [g/cm ³]	FillingCheck™	Solvent 1	Solvent 2	Note/recommendation
cosmetic, personal care	deodorant (aerosol)	0.572	3 E-04	on	-	ethanol	-
cosmetic, personal care	mouth rinse	1.021	2 E-04	on	tap water	ethanol	-
food	apple vinegar	1.013	2 E-04	on	tap water	ethanol	-
food	milk	1.055	2 E-04	on	tap water and detergent	ethanol	-

2.2 Viscous samples

Table 2: Liquid samples with high viscosity

Industry	Sample	Result at 20 °C [g/cm ³]	Repeatability [g/cm ³]	FillingCheck™	Solvent 1	Solvent 2	Note/recommendation
cosmetic, personal care	cream concentrate	0.958	3 E-04	off	tap water	ethanol	sample inhomogeneity due to micro bubbles
cosmetic, personal care	wash gel	1.037	2 E-04	off	tap water and detergent	ethanol	-
cosmetic, personal care	beauty oil	0,883	2 E-04	on	tap water	ethanol	-
cosmetic, personal care	shampoo	1,038	2 E-04	off	tap water and detergent	ethanol	-
cosmetic, personal care	body milk	0.987	2 E-04	off	tap water and detergent	ethanol	-
cosmetic, personal care	cleansing milk	0.988	2 E-04	off	tap water and detergent	ethanol	-
cosmetic, personal care	glycerine	1.261	2 E-02	off	tap water and detergent	ethanol	use syringe clamp: due to the pasty nature one has to overcome entrapped air
food	ketchup	1.144	1 E-03	off	tap water	ethanol	-
food	sour cream	1,036	1 E-04	on	tap water	ethanol	-
food	agave syrup	1.389	2 E-04	on	tap water and detergent	ethanol	-

2.3 Highly viscous, pasty samples

Table 3: Highly viscous, pasty samples

Industry	Sample	Result at 20 °C [g/cm ³]	Repeatability [g/cm ³]	FillingCheck™	Solvent 1	Solvent 2	Note/recommendation
cosmetic, personal care	foot balm	0.987	4 E-04	off	tap water and detergent	ethanol	use syringe clamp: due to the pasty nature one has to overcome entrapped air
cosmetic, personal care	sun cream	1.016	2 E-04	off	petroleum naphta	ethanol	-
cosmetic, personal care	hand and nail balm	0.981	2 E-02	off	tap water and detergent	ethanol	use syringe clamp: due to the pasty nature one has to overcome entrapped air
cosmetic, personal care	hair gel	0.996	2 E-03	off	tap water and detergent	ethanol	use syringe clamp: due to the pasty nature one has to overcome entrapped air
cosmetic, personal care	make-up	1.114	8 E-04	on	tap water	ethanol	-

Table 3: Continued

Industry	Sample	Result at 20 °C [g/cm ³]	Repeatability [g/cm ³]	FillingCheck™	Solvent 1	Solvent 2	Note/recommendation
cosmetic, personal care	shoe cream	0.992	2 E-04	off	petroleum naphta	ethanol	use syringe clamp: due to the pasty nature one has to overcome entrapped air
food	honey	1.417	2 E-04	off	tap water and detergent	ethanol	use syringe clamp: due to the pasty nature one has to overcome entrapped air
food	mayonnaise	0.982	1 E-03	off	tap water and detergent	ethanol	use syringe clamp: due to the pasty nature one has to overcome entrapped air
chemical	wall color	1.381	6 E-04	off	Desana	acetone	-

2.4 Waxy samples

Table 4: Waxy samples (solid at room temperature)

Industry	Sample	Result at 20 °C [g/cm ³]	Repeatability [g/cm ³]	FillingCheck™	Solvent 1	Solvent 2	Note/recommendation
cosmetic, personal care	petroleum jelly (vaseline)	1.146	5 E-04	off	tap water and detergent	ethanol	preheat the sample to reduce viscosity and liquidation enables to fill in the sample into the measuring cell

2.5 Oily samples

Table 5: Oily samples

Industry	Sample	Result at 20 °C [g/cm ³]	Repeatability [g/cm ³]	FillingCheck™	Solvent 1	Solvent 2	Note/recommendation
cosmetic, personal care	oil care bath	1,043	2 E-04	off	tap water and detergent	ethanol	-
cosmetic, personal care	tanning oil	0.921	2 E-04	on	petroleum naphta	ethanol	-

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