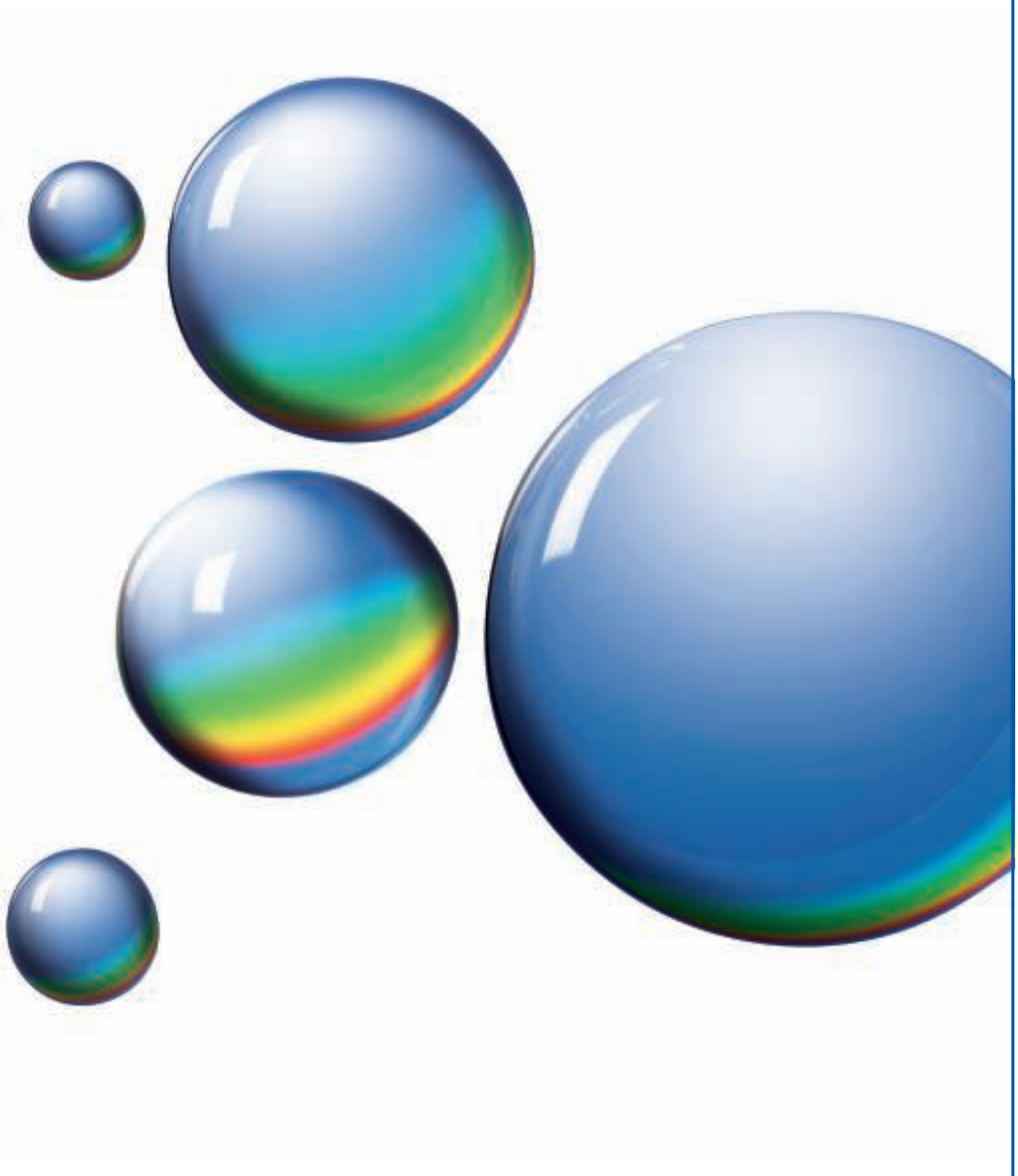
Bright prospects

Solvents for spectroscopy Uvasol®



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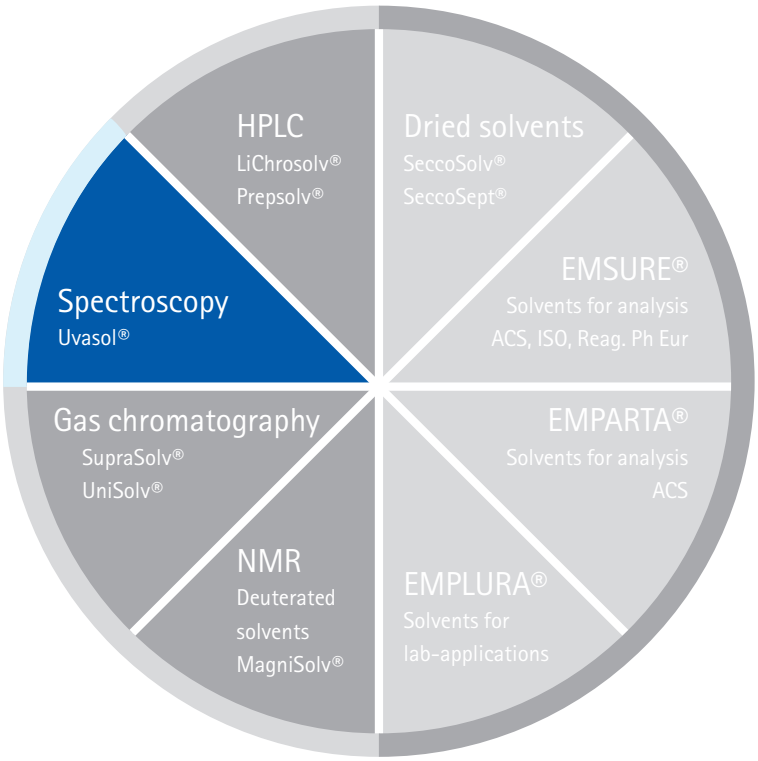
Simply the best

UV/VIS and infrared spectroscopy are reliable and accurate methods used in modern analytical laboratories. Their versatility makes them indispensable for numerous analytical problems, and the wide variety of sample types reflects their value as an analytical tool. Using UV/VIS spectroscopy, either an unknown substance can be identified or the concentration of a known substance determined. In both cases, accurate analytical results depend on the use of very pure solvents for sample preparation.

The Uvasol® solvent range has been specially designed for spectroscopy and other applications requiring solvents of the highest spectral purity. Uvasol® solvents are thus produced from prime quality raw materials and subjected to stringent purification procedures. The refinement process allows a greater degree of security in applications and avoids misinterpretation of analytical results caused by traces of UV, IR and fluorescence contamination. Uvasol® solvents are comprehensively and stringently tested for highest spectrophotometric demands. Simply the best.



Your benefit

- **Accurate, reliable analytical results and minimal risk of misinterpretation** due to highest UV transmittance/lowest UV absorbance as well as highest chemical purity
- **Suitable for Ph Eur and USP methods** due to specified UV transmittance/absorbance in accordance with Reag. Ph Eur and ACS
- **Time and cost savings (no need for repeat analysis)** due to highest batch-to-batch consistency
- **Application security** due to application-tested quality

Uvasol® for UV/VIS- and infrared spectroscopy – best optical purity

Uvasol® solvents have the highest and widest specification of the UV range in the market. In all specifications the minimum transmittance for 5 typical wavelengths are identified. Uvasol® solvents are also suitable for IR spectroscopy applications.

Figure 1 shows the low infrared absorbance of Isooctane Uvasol® in the relevant wavenumbers > 4,500. The lower the absorbance, the more precise are your analytical results. Costly repeat analysis or even the loss of valuable samples can thus be prevented.

Figure 2 shows the high UV transmittance of Isooctane Uvasol®. It has a very high transmittance even in low wavelength ranges, resulting in good and reliable analytical results – leaving no room for doubt in your analysis.

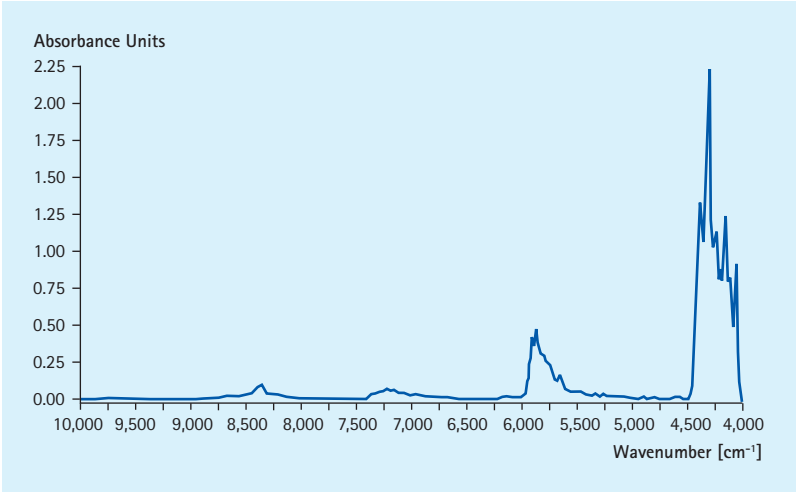


Figure 1: Isooctane Uvasol®, IR spectrum, batch I208518.

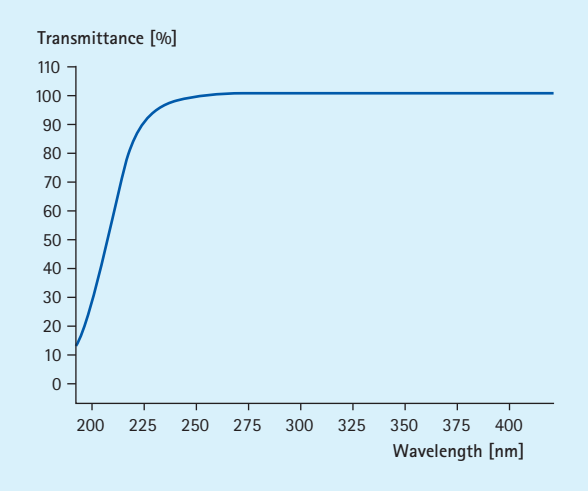


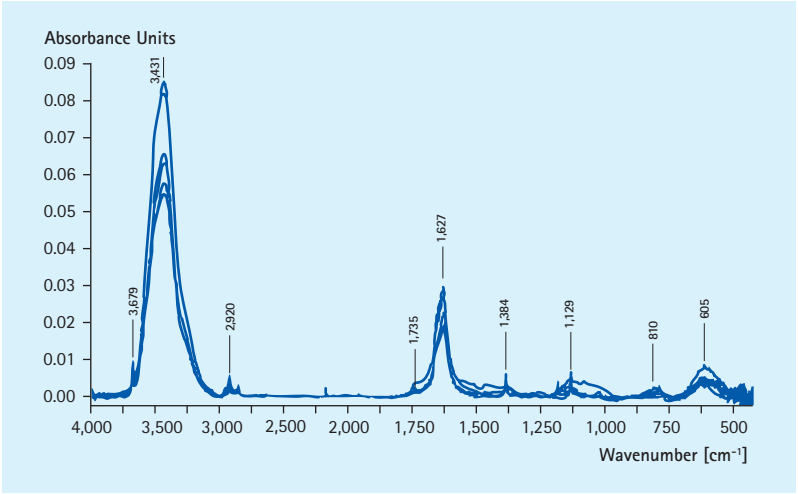
Figure 2: Isooctane Uvasol®, UV spectrum, batch I208518.

Postassium bromide Uvasol® for infrared spectroscopy

Potassium bromide (KBr) is transparent from the near UV to long-wave IR wavelengths. It has no significant optical absorption lines in its high transmission region. In IR spectroscopy, solid samples which are difficult to melt or dissolve in any suitable IR-transmitting solvent are analyzed by grinding with potassium bromide powder, and pressing into a disc.

The technique of potassium bromide pelletizing for infrared spectroscopy places high quality requirements on the potassium bromide used. Potassium bromide Uvasol®, prepared by a special method of purification and subsequent treatment, is adjusted to a mean particle size of 150 µm.

This is sufficient for the preparation of perfectly good pellets without the need for further pre-treatment and the associated risk of contamination. It also retains its powdery form over a period of years if stored in an air-tight condition. Its physical suitability for pelletizing is checked by a special application test and its chemical purity determined by full spectrum FT-IR analysis. The intensities for the OH- and CH-bands in particular are indicated as these occur frequently in critical applications.



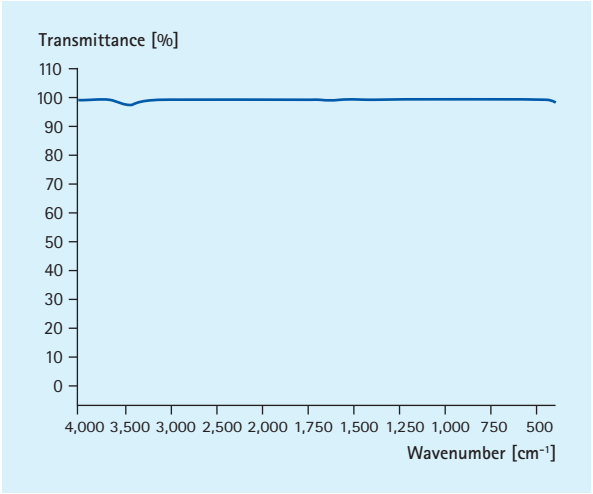


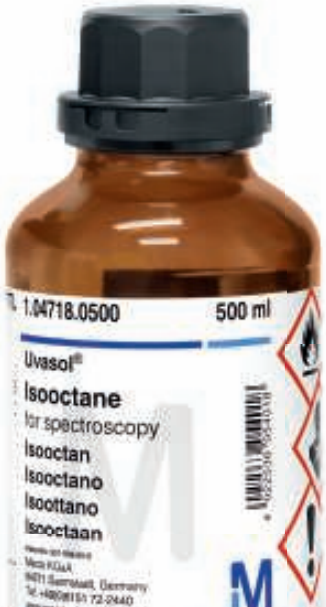
Figure 3: FT-IR absorbance spectra of representative batches of Uvasol® potassium bromide at 5 mm path length and transmittance spectra (blank) at 0.7 mm path length (32 scans, 2 cm^{-1} resolution, DTGS detektor, Bruker IFS-48).

Ordering information

	Product	Purity (GC) min. [%]	Evap. residue max. [%]	Water max. [%]	Fluorescence max. [ppb] 254 nm	Fluorescence max. [ppb] 365 nm	UV-transmission at [nm]	Content / Packaging	Ord. No.
A	Acetone	99.9	0.0002	0.05	–	1.0	330 (15 %), 335 (60 %), 340 (85 %), 345 (95 %), 350 (99 %)	500 ml GL	1.00022.0500
								2.5 l GL	1.00022.2500
	Acetonitrile	99.9	0.0002	0.01	0.5	0.5	190 (20 %), 195 (60 %), 200 (90 %), 215 (95 %), 230 (98 %)	1 l GL	1.00016.1000
								2.5 l GL	1.00016.2500
B	1-Butanol	99.9	0.0002	0.03	1.0	1.0	210 (25 %), 220 (60 %), 230 (70 %), 240 (85 %), 245 (90 %), 270 (98 %)	500 ml GL	1.01989.0500
	tert-Butyl methyl ether	99.9	0.0002	0.01	1.0	1.0	215 (40 %), 235 (55 %), 240 (60 %), 255 (85 %), 260 (90 %), 280 (98 %)	1 l GL	1.01984.1000
C	Carbon disulfide	99.9	0.001	0.01	–	–	–	1 l GL	1.02210.1000
	Chloroform, stabilized	99.0	0.0002	0.01	1.0	1.0	245 (15 %), 250 (50 %), 255 (60 %), 260 (85 %), 270 (98 %)	500 ml GL	1.02447.0500
								2.5 l GL	1.02447.2500
	Cyclohexane	99.9	0.0002	0.005	1.0	1.0	208 (20 %), 220 (55 %), 230 (80 %), 240 (90 %), 250 (98 %)	500 ml GL	1.02822.0500
								2.5 l GL	1.02822.2500
D	Dichloro-methane, stabilized	99.9	0.0002	0.01	1.0	1.0	235 (30 %), 240 (70 %), 245 (85 %), 250 (95 %), 255 (98 %),	500 ml GL	1.06048.0500
								2.5 l GL	1.06048.2500
	Diethyl ether, stabilized	98.0	0.0003	0.03	1.0	1.0	220 (30 %), 235 (55 %), 250 (80 %), 270 (90 %), 300 (98 %)	1 l GL	1.00930.1000
	N,N-Dimethyl-formamide	99.9	0.0002	0.02	–	1.0	270 (25 %), 275 (60 %), 290 (80 %), 300 (90 %), 330 (98 %)	500 ml GL	1.02937.0500
								2.5 l GL	1.02937.2500
	Dimethyl sulfoxide	99.8	0.0004	0.05	–	7.0	270 (35 %), 280 (50 %), 310 (80 %), 330 (90 %), 350 (97 %)	500 ml GL	1.02950.0500
								2.5 l GL	1.02950.2500

	Product	Purity (GC) min. [%]	Evap. residue max. [%]	Water max. [%]	Fluorescence max. [ppb]		UV-transmission at [nm]	Content / Packaging	Ord. No.
					254 nm	365 nm			
E	Ethanol	99.9	0.0002	0.05	1.0	1.0	207 (20 %), 220 (55 %), 235 (80 %), 240 (85 %), 245 (90 %), 260 (98 %)	500 ml GL	**1.00980.0500**
								2.5 l GL	**1.00980.2500**
	Ethyl acetate	99.9	0.0002	0.01	2.0	1.0	255 (20 %), 260 (75 %), 263 (80 %), 265 (90 %), 270 (98 %)	500 ml GL	**1.00863.0500**
								2.5 l GL	**1.00863.2500**
H	n-Heptane	99.3	0.0002	0.005	1.0	1.0	200 (20 %), 210 (55 %), 220 (80 %), 228 (90 %), 245 (98 %)	500 ml GL	**1.04366.0500**
								2.5 l GL	**1.04366.2500**
	n-Hexane	99.0	0.0002	0.005	1.0	1.0	195 (10 %), 210 (60 %), 217 (80 %), 225 (90 %), 245 (98 %)	500 ml GL	**1.04372.0500**
								2.5 l GL	**1.04372.2500**
I	Isooctane	99.8	0.0002	0.005	1.0	1.0	205 (30 %), 215 (65 %), 220 (80 %), 225 (85 %), 235 (90 %), 245 (98 %), 255 (99 %)	500 ml GL	**1.04718.0500**
								2.5 l GL	**1.04718.2500**
M	Methanol	99.9	0.0002	0.01	1.0	1.0	205 (10 %), 210 (30 %), 220 (60 %), 230 (80 %), 240 (90 %), 250 (95 %), 260 (98 %)	500 ml GL	**1.06002.0500**
								2.5 l GL	**1.06002.2500**
	2-Methyl-butane	99.8	0.0005	0.005	1.0	1.0	190 (50 %), 200 (65 %), 210 (85 %), 215 (90 %), 240 (98 %)	1 l GL	**1.06056.1000**
P	Potassium bromide	–	–	–	–	–	–	100 g GL	**1.04907.0100**
								500 g GL	**1.04907.0500**
	n-Pentane	99.5	0.0002	0.005	1.0	1.0	200 (50 %), 210 (70 %), 215 (85 %), 225 (95 %), 240 (98 %)	1 l GL	**1.07179.1000**
	2-Propanol	99.9	0.0002	0.05	1.0	1.0	210 (30 %), 220 (65 %), 230 (80 %), 240 (90 %), 250 (95 %), 260 (98 %)	1 l GL	**1.00993.1000**
								2.5 l GL	**1.00993.2500**
T	Tetrachloro-ethylene	99.9	0.0005	0.01	–	1.0	290 (20 %), 295 (65 %), 300 (80 %), 305 (85 %)	500 ml GL	**1.00965.0500**
								2.5 l GL	**1.00965.2500**
	Tetrahydro-furan	99.9	0.0002	0.01	1.0	1.0	215 (30 %), 245 (50 %), 265 (80 %), 275 (90 %), 310 (98 %)	500 ml GL	**1.08110.0500**
								2.5 l GL	**1.08110.2500**
	Toluene	99.9	0.0002	0.01	–	1.0	285 (15 %), 290 (60 %), 300 (80 %), 310 (90 %), 335 (96 %), 350 (98 %)	1 l GL	**1.08331.1000**
	Trifluoro acetic acid	99.8	0.005	0.1	–	–	265 (10 %), 305 (50 %), 320 (80 %), 325 (90 %)	25 ml GL	**1.08262.0025**
								100 ml GL	**1.08262.0100**
								1 l GL	**1.08262.1000**
								2.5 l GL	**1.08262.2500**

All solvents are filtered through 0.2 µm | Color: max. 10 Hazen | Acidity: max. 0.0002 meq/g | Alkalinity: max. 0.0002 meq/g | GL = glass bottle



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