Solvent Purification Methods:

UV-transparent solvents are essential for spectroscopy below 300 nm. Classical methods of purifying solvents for UV spectroscopy are very time-consuming and complex. This is not the case when using adsorption filtration. UV-transparent solvents can be quickly and easily prepared from solvents of ordinary analytical purity. Moreover, they are less sensitive to air and thus more stable.

Purification of Hydrocarbon Solvents

- A sample of 300 ml analytical grade *n*-hexane or pre-purified (by shaking with sulfuric acid to remove alkenes or olefines) technical grade cyclohexane is additionally filtered without suction through a column (25 mm I.D. and 250 mm height) filled with 150 g Alumina Basic, Act. I (Cat.# 15640). The filtrate is anhydrous and can immediately be used.
- Technical grade cyclohexane, that is not pre-purified, can easily be purified by filtering through a combined Silica Gel, Active, 60 Å, 63-200 µm / Alumina Basic, Act. I column. A column (25 mm I.D. and 400 mm height) is first filled with 100 g Alumina Basic, Act. I (Cat.# 15640) and on top of this, 100g of Silica Gel, Active, 60 Å, 63-200 µm (Cat.# 10840) is added. Then the crude cyclohexane is dripped through. Purified cyclohexane is anhydrous.

Purification of Organic Solvents

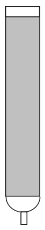
Depending on the kind of impurities, which depends on the origin and the nature of the solvent, the solvent can be filtered through a column filled with Silica Gel, Active, 60 Å, 63-200 µm, Alumina (Acid, Neutral or Basic), Act. I, or a combination of the two with the alumina section of the column above the silica gel section of the column. The following table gives recommendations on the amount and type of adsorbent to be used as well as the solvent yield and obtained purity.

Solvent	Alumina, Acid, Act. I Cat.# 15600	Alumina, Neutral, Act. I Cat.# 15740	Alumina, Basic, Act. I Cat.# 15640	Silica Gel, Active, 60 Å, 63-200 µm Cat.# 10840	Solvent Yield (ml)	50% Trans. at nm (4 cm cuvette)
n-Pentane				40 g	250	217
			40 g		55	217
n-Hexane				40 g	250	218
			40 g		50	
Cyclohexane				40 g	700	233
			40 g		80	234
n-Heptane				40 g	500	224
			40 g		70	232
Isooctane			40 g	40 g	250	226
				40 g	1600	224
			40 g		255	255
	40 g				255	255
Carbon tetrachloride				40 g	80	280
	40 g				4000	276
Chloroform DAB6				40 g	340	
			40 g		100	
Nitromethane		40 g			40	402
Dimethyl sulfoxide			40 g		170	326
Pyridine				40 g	30	321
			40 g		35	332
	40 g				30	
			20 g	20 g	25	316

Silica Gel, Active, 60 Å 63-200 µm

Alumina, Basic, Act. I, 50-200 µm

Silica Gel, Active, 60 Å, 63-200 µm



Alumina, (Acid, Neutral or Basic) Act. I, 50-200 µm

Alumina, (Acid, Neutral or Basic) Act. I, 50-200 µm

+

Silica Gel, Active, 60 Å, 63-200 µm

G. Hesse and H. Schildknecht, Angew. Chem. 67, 737 (1955)

G. Hesse, B. P. Engelbrecht, H. Engelbrecht and S. Nitsch, Z. Anal. Chem. 241, 91 (1968)