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## Density of chloroform and water

3 immiscible liquids of different densities are in a sealed cylinder. Chemicals and Solutions Bis(2-chloroethyl)ether Water Mineral oil Materials One large cylinder with the above mentioned liquids Procedure This is a display. The column consists of 3 liquid layers with dyes. The cylinder can be shaken and it will separate over time. The order of density from least dense to most dense is: Liquid/Solid Density in g/mL or g/cm<sup>3</sup> Bis(2-chloroethyl) ether 1.456 Water 0.998 Mineral Oil 0.8 Hint It takes a while to separate fully. If you shake the cylinder, do so early in the lecture. References Sakshashiri Chemical Demonstrations Vol 3 pg 225, 1989, The University of Wisconsin Press, Madison Wisconsin Density Column 2 Summary Three level density column is made in class. Hazards Iodine can cause burns. Chloroform is a possible carcinogen Copper Sulfate is an irritant Chemicals and Solutions Ethyl Acetate Water Chloroform Iodine CuSO<sub>4</sub> Materials 2 Ungraduated Cylinders deflagrating spoon Procedure Two Ungraduated cylinders will be provided with the three liquids inside. Liquid Density in g/mL or g/cm<sup>3</sup> Ethyl acetate 0.897 Water 1.00 Chloroform 1.48 Using the deflagrating spoon Copper Sulfate is added to the aqueous layer (center) and gently stirred. Copper sulfate is only miscible in the aqueous layer and will show a floating blue layer. Iodine is then added to the other cylinder which is miscible in organic layers. An orange and red solution will be separated by the colorless middle aqueous phase. The iodine and copper sulfate will then separate into the corresponding cylinder to make an orange/blue/red column. Hint Do not mix the organic layers as they are miscible. Disposal Organic layers will be combined and sent to EHS&S as 1%iodine 99% Ethyl acetate/chloroform. Aqueous layer will be sent as 1% CuSO<sub>4</sub> and 99% water. References Share PrintPDF Back to lecture demo index To schedule a demonstration, please login to the online lecture demonstration scheduler. Login with your netid in the form of "netid@ flamingo.netidjm This article references 80 other publications. 1Lipinski, C. A. Lead- and Drug-Like Compounds: The Rule-of-Five Revolution. *Drug Discovery Today*. Technol. 2004, 1, 337– 341. DOI: 10.1016/j.ddtec.2004.11.007 2Lipinski, C. A.; Lombardo, F.; Dominy, B. W.; Feeney, P. J. Experimental and Computational Approaches to Estimate Solubility and Permeability in Drug Discovery and Development Settings. *Adv. Drug Delivery Rev.* 1997, 23, 3– 25. DOI: 10.1016/0169-409x(96)00423-1 3Sugano, K.; Kansy, M.; Artursson, P.; Avdeef, A.; Bendels, S.; Di, L.; Ecker, G. F.; Fallar, B.; Fischer, H.; Gerebztov, H.; Lennernaes, H.; Senner, F. 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