

Solubility of e-CL-20 in binary solvents at temperature ranging from 293.15 to 333.15K

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The nitramine 2,4,6,8,10,12-hexanitro-2,4,6,8,10,12-hex-azaisowortzitane (CL-20), is the most powerful commercially available explosive at present. CL-20 has been reported to exist in four polymorphs, oh which e-CL-20 is the most useful due to high density, high energetic low sensitivit. So solubility of e-CL-20 in binary solvents is required to crystallization for industrial-scale separation and purification.

In the study focused on solubility of e-CL-20 in binary solvents(ethyl acetate+n-heptane). The solubility of e-CL-20 is reported that very slightly decreasing when temperature is increasing in ethyl acetate. And the solubility of e-CL-20 is reported that not soluble in n-heptane. The solubility of e-CL-20 in binary solvents of (ethyl acetate+n-heptane) when mass fraction of ethyl acetate is 0.800, is 0.311g/g at temperature of 293K, and 0.290g/g at temperature of 313K, and 0.306g/g at temperature of 333K. The results indicate that the solubility of e-CL-20 in binary solvents (ethyl acetate+n-heptane) correlates negatively with temperature ranging from 293K to 313K. But the solubility of e-CL-20 (EA+n-heptane) correlates positively with temperature ranging from 313K to 333K.