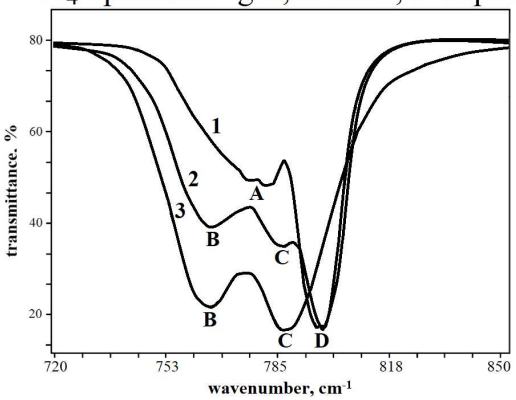
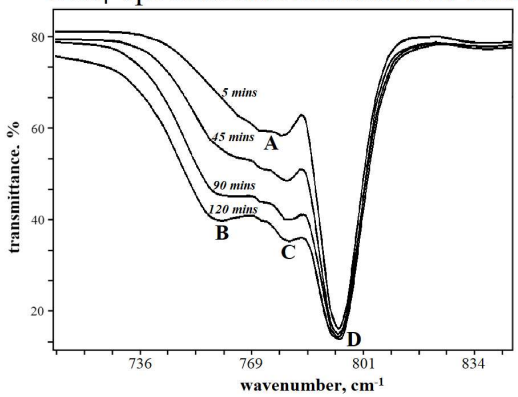
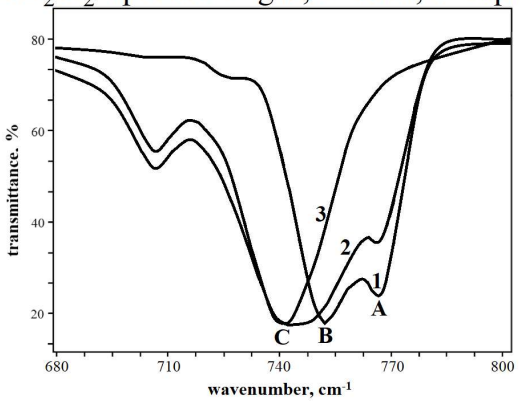
CCl_4 spectra: 1- gas, 2- fluid, 3- liquid



CCl_4 spectra:fluid formation in time

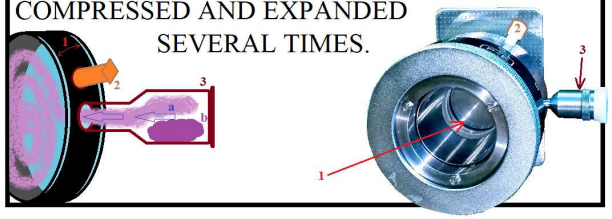


CH_2Cl_2 spectra: 1- gas, 2- fluid, 3- liquid



EXPERIMENT

TO GENERATE THIN LAYERS, A VARIABLE THICKNESS OPTICAL CELL SHOWN BELOW WAS USED. THE SUBSTANCE EVAPORATED[a] FROM A BRANCHED SURFACE[b] IN A FUNNEL[3] INTO THE CELL[1] FOR 2-70 HOURS. THE FUNNEL WAS THEN REPLACED WITH A LUER PLUG[2]. AFTER THAT, THE CELL WAS COMPRESSED AND EXPANDED SEVERAL TIMES.



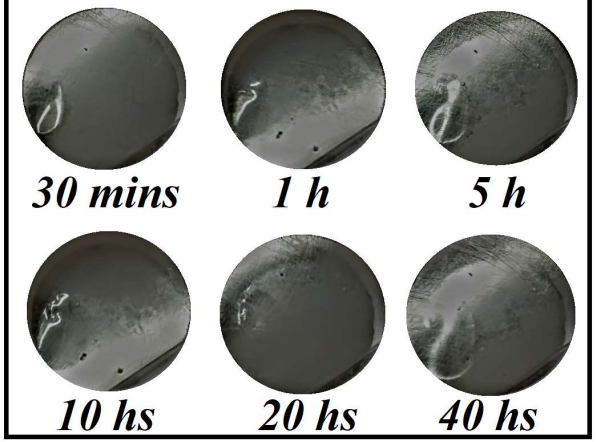
RELEVANCE

THE NEAR-SURFACE AREA THIN LAYERS PLAY AN IMPORTANT ROLE IN CATALYSIS. FLUIDS ARE ALSO DEMANDED IN CATALYSIS DUE TO THEIR SOLUBILITY AND ACTIVITY. OUR METHOD ALLOWS TO GENERATE THIN LAYERS OF ORGANIC SOLVENTS WITH VARIABLE GAS-LIQUID PROPERTIES SIMILAR TO FLUID ONES.

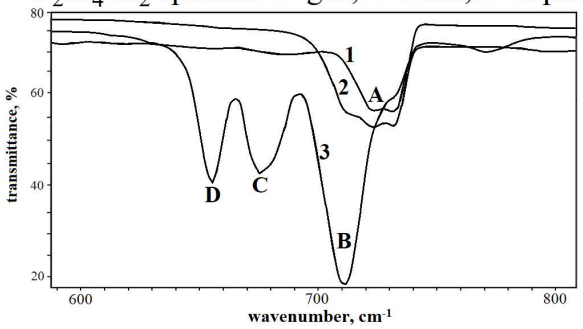
OBJECTIVES

1. TO FIX THE FORMATION OF THIN LAYERS BY IR SPECTROSCOPY ANALYTICAL METHODS
2. TO SHOW CHANGES IN PHASE PROPERTIES AND INTERMOLECULAR TRANSFORMATIONS

FLUID PHOTOS



$C_2H_4Cl_2$ spectra: 1- gas, 2- fluid, 3- liquid



CONCLUSION

1. OUR METHOD ALLOWS TO OBTAIN A THIN FLUID-LIKE LAYER WITH VARIABLE PHASE PROPERTIES. ITS FORMATION AND CHANGES IN IT WERE CONFIRMED BY BOTH VISUAL AND IR SPECTRAL OBSERVATIONS.

2. OUR METHOD USES AN ENERGY-EFFICIENT AND RESOURCE-SAVING PHYSICOCHEMICAL PROCESS.

3. THIN FLUID-LIKE LAYERS ARE CHEMICALLY ACTIVE DUE TO THEIR ENHANCED INTERMOLECULAR INTERACTIONS.

$C_2H_4Cl_2$ spectra: fluid formation in time