

### Asphalt upgrading by ultrasound irradiation using horns with different diameter

석승환, 김도현\*

KAIST

(dohyun.kim@kaist.ac.kr\*)

The petroleum industry is continually demanding ways to utilize residue that has low quality, low value and limited utility. The conventional upgrading processes for asphalt to more valuable products have been done by using thermal cracking, catalytic cracking or hydrocracking. Those methods are costly due to high temperature, high pressure and consumption of large amount of catalyst and hydrogen. For milder process conditions and to reduce the amount of chemicals used, an ultrasonic process utilizing acoustic cavitation can be a potential substitute for it. In this study, asphalt was treated by ultrasonic horn with different diameters using different reaction times. Element Analysis (EA), TGA (Thermogravimetric Analysis) and FT-IR (Fourier transform infrared spectroscopy) were used to analyze the efficiency of asphalt upgrading.