

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Fluid and Materials Sciences (2)

Author: Prof. KAI LI

National Microgravity Laboratory, Institute of Mechanics, Chinese Academy of Sciences., China,
likai@imech.ac.cn

LIQUID SLOSHING IN STORAGE TANK IN MICROGRAVITY

Abstract

Four different filling ratios were selected and the typical patterns of liquid sloshing in the storage tank were studied. We used the moving contact line and free surface center to depict the dynamic behavior of liquid sloshing. Both the storage with ethanol and FC-72 show different free surface dynamic behaviors corresponding to different filling ratio. The gravity level plays a critical role during the liquid sloshing. Moreover, we find that the oscillation frequency, for the two cases whether the moving contact line climbed up to the top of storage tank or not, increases with the increasing of filling ratio of liquid. The effectiveness of dynamic contact angle was also discussed.