Cleaning Clip Applying the Principle of Acoustic Levitation

Lee, Seung won (School: Yeosu High School)

Explosions in chemical plants around the world make us all sad. Also, where I live, there is the largest chemical factory in Korea so I became more interested in this problem from a long time ago. In pipe tubes, various substances such as liquids, gases, gels, and solid oils move. Large chemical plants regularly suspend operations and clean pipes despite heavy economic losses. The pipe cleaning process sometimes leads to massive explosions and casualties. Unlike magnetic levitation, acoustic levitation technology allows objects to be moved, moved, or mixed without restriction on the state of matter so I applied it to the project. Until now, acoustic levitation technology has been limited to hemispherical laboratory devices, small liquid spray droplets, and small Styrofoam balls. Also, it is not well known to people. My project is based on sound levitation. I designed the acoustic levitation in the shape of a clothespin. The shape of the cloth pin can be used flexibly for various pipe thicknesses by moving the fixed position. Easy to install and move, providing the best convenience without limitation to the danger or condition of the substance. This device can be fixed outside the pipe for cleaning function. In the near future, using my designed device can reduce the economic loss of stopping a chemical plant for cleaning. You don't lose your precious family because of the explosion of hazardous materials while cleaning the pipes. I checked the possibility through an experiment. I will continue to study acoustic levitation. I will develop this device so that it can be used in a real chemical plant. I will continue to study acoustic levitation. I will develop this device so that it can be used in a real chemical plant.

Awards Won: