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Negative Pressures of Ca. -20 MPA for Water Enclosed into a Metal Berthelot Tube under a Vacuum Condition

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Abstract : Negative pressures of liquids have been expected to contribute many kinds of technology. Nevertheless, experiments for subjecting liquids which have not too small volumes to negative pressures are difficult even now. The reason of the difficulties is because the liquids tend to generate cavities easily. In order to remove cavitation nuclei, an apparatus for enclosing water into a metal Berthelot tube under vacuum conditions was developed. By using the apparatus, negative pressures for water rose to ca. -20 MPa. This is the highest value for water in metal Berthelot tubes. Results were explained by a traditional crevice model. Keywords

Keywords : Berthelot method, negative pressure, cavitation nuclei, water
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