

APPENDIX

Appendix 1: Regular steps for prepare a new BMF with a novel scatter particle called poly (4-methylstyrene)

The mixture fluid and BMF were prepared in the following method ways:

1. Utilizing a suitable beaker with size at least two times the volume of required fluids for preparing and make the BMF avert overflow the ingredients during stirring
2. Weigh all the items components in a safe place such as a fume hood and pouring them into the beaker
3. Stirring the beaker via the stirrer plate for around 15 min of each sample mixture, and set the room temperature to be $37^{\circ}\text{C} \pm 0.7^{\circ}\text{C}$
4. Applying a vacuum pump instrument to remove the gas of the fluid mixture for 30 min
5. Measure both the physical (density and viscosity) and acoustical (speed of sound and attenuation) features of fluids of each sample
6. Select the best mixture fluid sample which corresponds to the defined IEC standard. Then, mix it with a proper scattered particles material for around 20 min for poly (4-methylstyrene) particles
7. Applying a vacuum pump equipment to remove the gas (Degas) the BMF for around 1 h. Then the BMF now is ready for users.