

ABSTRACT**An Emulsifier, and Method of Deriving Parameters For An Emulsifier**

- 5 A method of deriving parameters for an emulsifier for producing specific water-in-fuel emulsions consistent with emulsions produced by a reference emulsifier is disclosed herein. In a described embodiment, the emulsifier and reference emulsifier includes a desired mixing chamber and reference mixing chamber respectively for mixing fuel and water. The method comprises, at steps 602 to 604, deriving a diameter of the desired
- 10 mixing chamber for the emulsifier based on a diameter of the reference mixing chamber of the reference emulsifier, the derived dimension of the desired mixing chamber being one which creates a turbulent type flow at the mixing chamber. At step 605, the method includes calculating dimensionless water particle size from the derived dimension and at step 606, deriving nozzle dimension of the emulsifier for a plurality of
- 15 water nozzles for injecting the water into the oil at the mixing chamber from the calculated dimensionless water particle size. Further the method includes deriving the number of water nozzles for the emulsifier at step 607.

Figure 6