50. Title: An Environment Friendly metal-working Fluid

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Key Words: Metal-working fluids, Elasto-hydrodynamic-to-boundary lubrication, Commercial cutting fluid emulsions

Domain: Motors & Machines

Summary: A metal working fluid (MWF) is developed for use in industrial machining and grinding operations. MWF is used for reducing heat/friction and removing metal particles in a variety of different industries like, automotive and HVAC/refrigeration etc. The developed MWF has composition comprising vegetable oil made of soyabean, water soluble natural gum acacia, and water as diluent. The components of MWF are abundantly available in nature. This is simple and cost-saving alternative to commercially used metal-working fluids. Further, it can be used for prolonged periods of time at high load conditions.

Advantages:

» Cost saving alternative to existing MWFs containing performance enhancing additives and corrosion inhibitors

» Utilizes low concentration (around 0.5%) vegetable oil as compared to existing MWFs which use more that 5% vegetable oil

Applications: Industrial machining and grinding operations, automotive, and HVAC/ refrigeration

Scale of Development: A metal working fluid composition is developed and tested in Laboratory environment.

Technology Readiness Level: 4

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