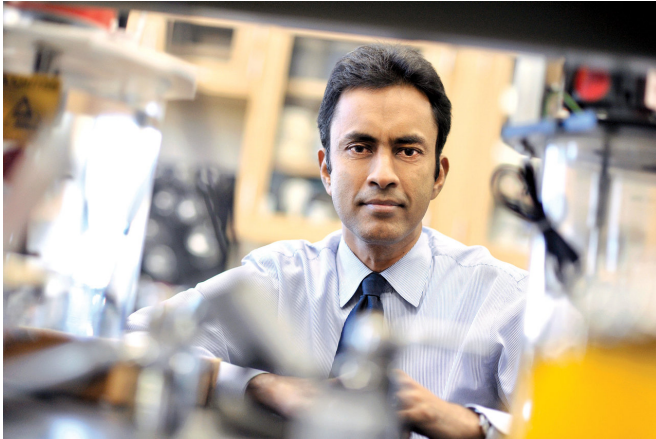


# UTA awarded patent for lubricant composition for universal grease for aircraft

14 November 2018, by Louisa Kellie



Pranesh Aswath, lead inventor for this research and a professor of materials science and engineering and mechanical and aerospace engineering. Credit: University of Texas at Arlington

The University of Texas at Arlington has been awarded a patent for a lubricant composition that can be used as a universal grease for aircraft.

"Universal greases used on aircraft have to function under extreme pressure conditions and variable temperatures, as well as work on all the moving parts of an aircraft, from wings to a door handle," said Pranesh Aswath, lead inventor for this research and a professor of materials science and engineering and mechanical and aerospace engineering. "We have developed a new class of lubricants with enhanced wear and friction performance by using milled metal sulfite particles as an additive to [grease](#), which shows better performance over a range of loads."

Metal sulfite, or Molybdenum disulfide ( $\text{MoS}_2$ ), is widely used as an additive in solid lubricants because of its low friction properties and robustness. However, at low loads or resistance, it shows excessive wear and higher friction.

To mitigate this problem, UTA researchers used pre-milled mixtures of  $\text{MoS}_2$ -based grease and sulfurized additives, which they found significantly improved wear properties over a range of mechanical resistances. Milled metal sulfite particles have rounded or reduced surface energy compared to non-milled particles.

"A single universal grease that is able to function in multiple conditions is key for the aerospace industry, as using two or three greases has proven to be incompatible and even caused crashes in the 1980s," Aswath said. "We believe our patented [lubricant](#) compositions could fill an important gap in the market and provide a safer, more effective performance."

This research was carried out at UTA's Tribology, Lubrication and Coating Laboratory, established in 1999 and now recognized as one of the world's top labs in the field. Since its founding, the lab has published close to 60 journal articles published and been awarded more than 10 patents.

"Dr. Aswath and his collaborators have established a strong focus area of research in lubricant additives and their lab is widely recognized as a leading center for these activities," said UTA College of Engineering Dean Peter Crouch. "The new patented technology can be viewed as an additional route to enhanced [aircraft](#) safety through a universal grease that is effective under multiple conditions."

Provided by University of Texas at Arlington

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