NATIONAL THIRD - TRANSPORT

Natural Air Sealant/Tyre sealant

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A mechanic by profession, Pandu Ranga Rao (33) has developed a sealant for motorcycle and auto rickshaw tyres to make it puncture resistant. The novelty in his sealant is that it is prepared using natural products, helps tyres resist more punctures and works equally good in hot summers and cool winters.

Pandu Ranga Rao, who has studied till only class ten, has an inborn talent for innovations. Due to his interest in repairing works and machines, he started a mechanic workshop in his village. He lives with his wife, two daughters and a son.

It was sometime in 2008, the innovator was returning home at night on his motorcycle from a friend's place to his village, when his bike tyre got punctured. He was with his family and they had to walk 12km to reach home. It was then he started thinking of a solution. Conventionally to make a tyre puncture resistant, a sealant is filled in the tube along with some chemicals. However, heat patch is required to get the punctures repaired in these tubes. While the vehicle is being used, the chemicals keep moving inside the vehicle tyres, corroding it. Thus after 8-12 months of usage change of tubes is required. He started reviewing the different air sealants available in the market in order to understand the process in detail. Finally, he came up with a natural air sealant in 2012, which can resist punctures without damaging the tubes.

Summary
The natural air sealant is a product that can seal punctures without harming the tubes and whose performance does not vary according to climate. The cost of the sealant is much lower than other similar available products.

The components of the sealant consists of mica powder, rubber powder, gum, and colour (natural orange). For filling the sealant in the tube he has also developed a pressure sealant filling machine, which fills about 250 ml of viscous sealant in the tube within 10 seconds. The sealant is filled in an empty tyre tube and rotated after mounting on self-developed manually rotary frame very speedily.

The sealant has been used in tyres of bikes and auto rickshaws. Presently, the sealant is being tried for car also. Ranga Rao has observed the usage of sealant in different seasons. Sometimes tyre burst in summer due to air expansion due to heat, while in winters, the sealant liquid gets frozen. However, no such adverse effect was observed during these seasons, because as per his view, mica has a typical characteristic of cooling, it keeps tube cool for long.

He has been manufacturing and selling the sealant locally and would have distributes about 3000 tubes for trial purposes for bikes, about 80 odd tubes to auto rickshaws and over 11000 tubes have already been sold through different tube and tyre manufacturing companies. NIF has filed patent application in the name of innovator (6147/CHE/2015).