Bio-isoprene to emerge as new alternative for tyre production

MICHIGAN, USA (Commodity Online): With the rising natural rubber prices due to shortage of availability and increasing use of Synthetic rubber which is hard to decompose, the scientists are trying to find alternative solutions for the tyre industries. One of such alternatives for rubber for tyre industry is the use of bio- isoprene for the manufacture of eco- friendly tyres. Currently, synthetic rubber is manufactured using isoprene which is commercially made by cracking crude oil. As a result, the price of the synthetic rubber depends upon the trend of crude oil prices. According to reports, a research team from Michigan State University biochemistry and molecular biology department has developed an enzyme from bacteria which can produce bio-isoprene, which is eco-friendly and can reduce cost of tyre manufacturing. Tom Sharkey, chairperson of the Michigan State University biochemistry and molecular biology department, believes isoprene, a gas given off by many trees, ferns and mosses, could be a viable option. Some plants use it as a mechanism to tolerate heat stress as opposed to most crops, which stay cool through evaporation. Sharkey's research team already has measured rates of isoprene emission from plants that are used by the Environmental Protection Agency to predict lower-atmosphere ozone levels. His team also has created models to measure how much isoprene plants release on a global scale. Given the amounts of isoprene made by plants, finding a way to produce a synthetic version for the rubber industry seemed like the next logical step, Sharkey said. "I've found that isoprene research is irresistible," he said. "Once it was clear how much isoprene trees and plants produce and how biologically produced isoprene could be a key ingredient in making tires, it was natural to wonder if we could produce isoprene on a commercial scale." The concept of tyres made with Bio-isoprene technology was introduced by the Goodyear's company in 2009. Beyond tyres, Bio-isoprene offers vast potential in other applications, such as other rubber products and adhesives.