THIS WEEK IN CHEMISTRY

10TH JANUARY 2016 – 16TH JANUARY 2016

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EXPANDING POLYMER STOPS LITHIUM BATTERIES CATCHING FIRE

A new method uses polyethene mixed with graphene-coated nickel particles to coat an electrode. When it experiences rapid heating, the film expands, forcing the nickel particles apart and stopping electrical conductivity. It could be incorporated into current batteries.

CATALYST REDUCES MERCURY EMISSIONS FROM PVC INDUSTRY

A gold-based catalyst that has been in development for over 30 years is set to replace the toxic mercury catalysts currently used in the manufacture of PVC in China. The catalyst is used to create vinyl chloride monomer (VCM) by reacting acetylene and hydrogen chloride.

A CHEMICAL REACTION THAT'S ACCELERATED BY FREEZING

A power outage at a Dutch laboratory led to the freezing of an oxime ligation reaction to slow it. However, after thawing, they found the rate of the reaction had actually increased. This is thought to be due to slow-growing ice crystals concentrating reactants in the liquid.

STUDY SHOWS THAT CALCIUM ION BATTERIES ARE POSSIBLE

The study's battery used a tin anode, a manganese hexacyanoferrate cathode, and also a non-aqueous electrolyte based on calcium hexafluorophosphate. The study shows such batteries are possible, but it will be several years before a commercial battery is developed.

SNOW CAN ABSORB POLLUTANTS FROM ENGINE EXHAUSTS

Canadian scientists showed that snow can remove aerosol particles from air, and as a result can take up nanosized particles and organic chemicals from exhaust fumes. This has implications for air pollution when the snow eventually thaws and the compounds are released.