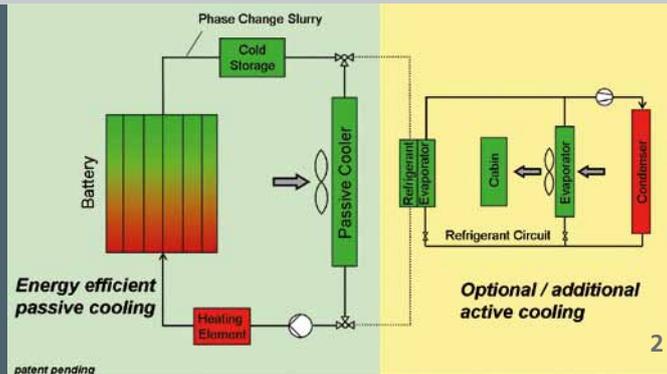




1



2

1 CryoSol^{plus} – a Phase Change Slurry (PCS)

2 Schematic diagram of a battery cooling system using PCS

left: passive cooling using a standard radiator plus a heating element for heating above 0 °C during the cold season

right: additional active cooling with a chiller

BATTERY COOLING CONCEPT FOR E-MOBILITY USING CRYOSOL^{PLUS}

HIGH ENERGY DENSITY FLUIDS FOR ENHANCED THERMOMANAGEMENT

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A proper cooling of the traction battery will ensure an optimal functioning and a longer working life.

The Phase Change Slurry CryoSol^{plus} offers the possibility to save valuable electric energy for driving instead for cooling. With its high energy density, which exceeds that of water by 200-300 %, battery cooling can be realised in the majority of cases only with passive cooling.

CryoSol^{plus} is a hybrid heat storage medium based on dispersed phase change materials (PCM), which has a high latent heat capacity combined with good flowing properties and a high heat transfer rate. Therefore a cooling system based on CryoSol^{plus} will

need a smaller storage tank compared to water. Additionally, the required volume flows and the related energy consumption are reduced. Another advantage is that CryoSol^{plus} can be used both as heat storage and heat transfer fluid.

For thermomanagement the cold storage is cooled using a chiller, during loading the battery. When driving, the battery is cooled by the cold storage and a passive cooler. Active cooling by a chiller, which consumes electricity, is only needed for temperature peaks and extreme conditions.

www.phasechangeslurries.net