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Smart additives for safe hydrogen economy

# More safety in handling hydrogen



## Supraparticles as technology basis



### How it works?

Potential leckage points are coated with supraparticles

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Color change occures in contact with hydrogen

Automatic detection of the color change with optical measurement technology



SafeHydrogen equipment



Level 1 (purple): Original condition before contact with H<sub>2</sub>

Level 2 (pink): Upon first contakt with  $H_{2r}$  the particles initially show an irreversible color change reaction (recording) within seconds.

Level 3 (colorless): Upon further exposure to  $H_2$ , a reversible color change reaction takes place (monitoring). As soon as no more  $H_2$  is present, the color switches back to stage 2 within seconds.



Camera-based automatic classification at 1.20m distance



### Our offer:

- Adaptation of the layers to the surface
- Development of application method
- Adaptation to other gases
- System development for monitoring
- Monochromatic camera-based monitoring of electrolyzer environment up to distance of 3.60 m