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## Systematic research for thermochemical energy storage materials

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The present study should help to identify and test appropriate materials for thermochemical energy storage. Due to high storage densities, thermochemical storage concepts seem to be promising and auspicious methods for future energy storage.<sup>[1]</sup> A further advantage is the possibility of more or less loss-free energy storage, if the material can be separated efficiently from the gaseous or liquid reactant which has to be stripped or added (in case of heat release).

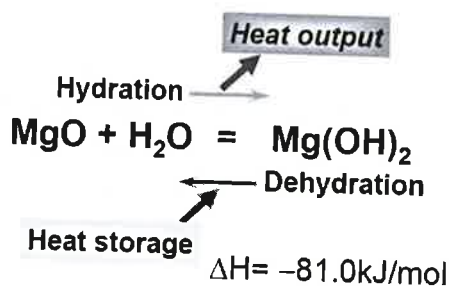


Figure 17: Principle of thermochemical energy storage<sup>[1]</sup>

Therefore, a systematic database oriented search algorithm is going to be developed within the project, which describes thermochemical substances according to their field of application and serves as a reliable source for material pre-selection.<sup>[2]</sup> The pre-selected materials will then be characterised using a wide array of chemical and physical methods like STA, XRD, RFA etc. The result will be a comprehensive, data-based catalogue for thermo-chemical energy storage materials which describes the substances according to the field of application (temperature), cycle stability (influence of impurities), materials handling and regulations to be considered (emission of fine dust, materials storage and toxicity).

### References:

- [1] Kato, Y; Yamashita, N; Kobayashi, K; Yoshizawa, Y; Applied Thermal Engineering, 2011, vol. 16, no.11, pp. 853-862  
 [2] Kenisarin, M; Mahkamov, K; Renewable and Sustainable Energy Reviews 2007, vol. 11, no. 9, pp. 1913-1965

