New Patented Processes of $NaBH_4$ Production by MERIT Ltd.

(Ⅰ) Mechano-chemical method with alkaline earth metal hydride

$$NaBO_2 + 2MgH_2 \rightarrow NaBH_4 + 2MgO \qquad \Delta G^0_{(298K)} = -270\ [kJ/mol\text{-}NaBH_4]$$

- Conversion of collision energy to chemical energy
- Ambient condition, short time, high borohydride yield
- Metal hydride as protide supplier and oxygen acceptor
- Low energy efficiency (less than 1%)
- Metal hydrogenation process (>400 °C,>1MPa) required