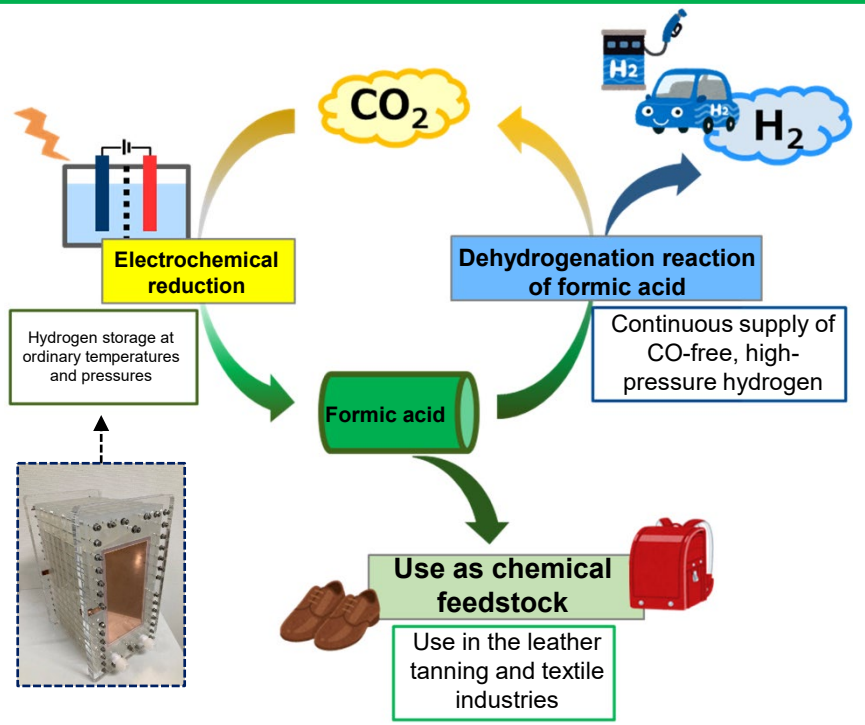
Electrochemical Reduction

R&D | FS/Demo | Product/ Service

Technology Research Center

- SHI is developing a technology to convert CO_2 emitted from power plants and machinery into valuable resources through **electrochemical reduction.**
- **With the generation of formic acid and synthesis gas targeted,** the technology is characterized by using boron-doped diamond electrodes (hereinafter, "BDD electrodes") for the electrochemical reduction of CO_2. BDD electrodes have a characteristically wide potential window, making it possible to initiate electrolytic reactions that conventional electrodes could hardly accomplish. Furthermore, these electrodes are physicochemically stable, promising stability and durability during system operation.
- Formic acid is expected to be used as feedstock for chemical products and as a hydrogen carrier. On the other hand, synthesis gas is expected to be used as feedstock for chemical products and fuel.



Carbon Neutral Contribution points

- ✓ **CO_2 recycling**
- ✓ It is possible to synthesize feedstock for chemical products that require a shift to post-fossil fuels and materials that support a hydrogen society.

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