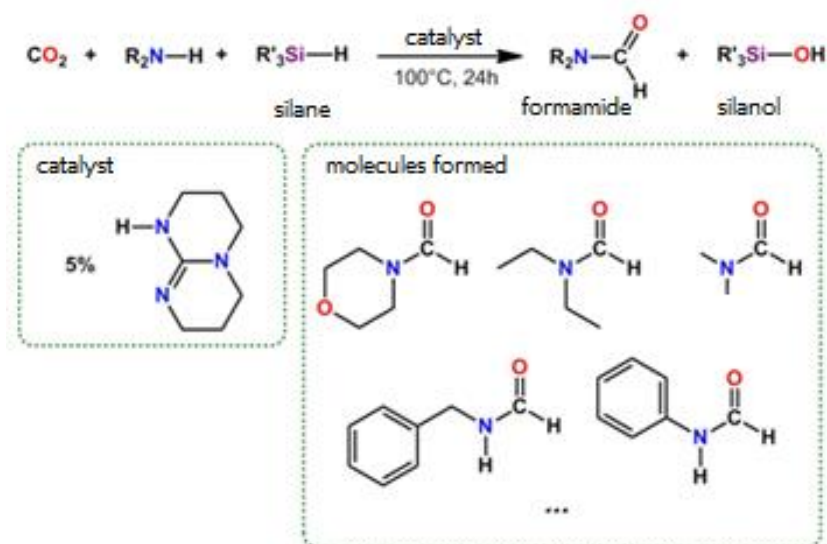


A New Way to Recycle CO₂

Today, thanks to the research conducted by the CEA/CNRS, there is a possible alternative approach to recycle CO₂. Using a new chemical process, this approach aims to add CO₂ molecules to materials. It is important to note that this reaction relies on an energy source of chemical origin. This approach allows the production of all kinds of different molecules. As a result of this research, it is now possible to convert CO₂ into formamides, which are molecules that usually come from petrochemical companies. Formamides are the base in the production of certain types of glue, paint and textiles.

The industrial creation of formamides relies generally on petrochemical methods. It requires several steps, placing a toxic gas (carbon monoxide) at a high temperature and under high pressure. On the other hand, the new method of CO₂ conversion discovered by the CEA/CNRS researchers aligns with green chemistry protocols in that it can be completed in a single step and, with the use of a catalyst, the reaction can take place at a low temperature and at a low pressure. Moreover, the catalyst used by the CEA/CNRS team is purely organic and doesn't require the use of toxic or costly metallic materials like gold, platinum or cobalt. Thanks to this process, the reaction can be achieved without the need for a solvent and it also limits the amount of waste produced.

<http://www2.cnrs.fr> – October 2011



Using this document and your own knowledge, explain how this new method answers the demands of green chemistry.