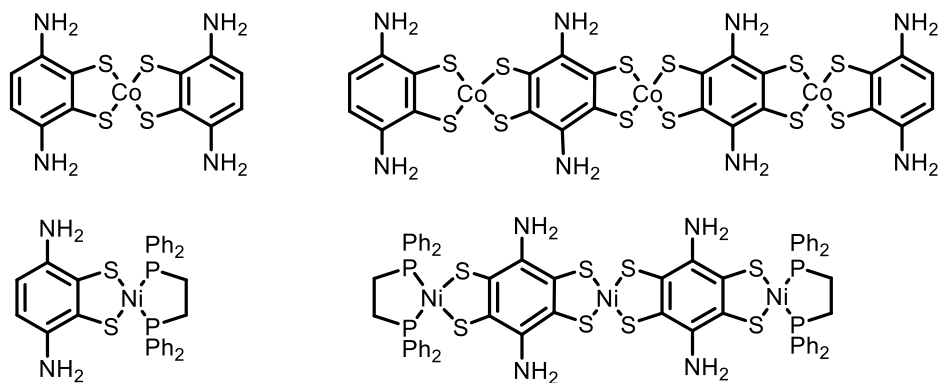


# Metal Catalysts for the Production of Hydrogen and Formate From Abundant Resources

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Funding was requested to investigate new metal catalysts for the production of hydrogen gas from water and the reduction of carbon dioxide to formate ions. The two reactions we propose to investigate are in response to the rising threat that greenhouse gases like carbon dioxide pose to human health, the health of the ocean and our planet as a whole. Data acquired is to be used to apply for further funds to build libraries of catalysts for high-throughput screenings. These screenings would be employed to optimize for robustness, speed, and yields of hydrogen production and carbon dioxide reduction.

The funds received from TCRF were used to purchase all chemicals and materials necessary to synthesize the first target compounds to test our hypothesis (Figure 1). The synthesis and purification of these compounds is ongoing and analysis of their catalytic activity is expected to begin this December.



*Figure 1: Target compounds for catalytic production of hydrogen gas and reduction of carbon dioxide*