**Next-Generation Water-Soluble Homogeneous Catalysts for Conversion of Glycerol to Lactic Acid**

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*Organometallics* **2018** *37* (9), 1400-1409

DOI: 10.1021/acs.organomet.8b00081

**Reading Guide**

1. Read the **Introduction**. You should be able to:
   1. Justify the purpose of the study.
   2. Identify the problems with current glycerol catalysts.
2. Examine **Chart 3.** You should be able to:
   1. Identify the structural differences between compounds **8**, **9**, and **12.**
   2. Read about their carbonyl stretching frequencies.
3. Examine **Chart 1**. You should be able to:
   1. Identify the differences between compounds **1-3** and compounds **4-9.**
   2. Identify the structural differences between compounds **4** and **5**.
   3. Identify the structural differences between compounds **7** and **9**.
   4. Identify the structural differences between compounds **5** and **10**.
4. Examine **Figures 3** and **4**. You should be able to:
   1. Compare the catalytic activities of compounds **1-3** and compounds **4-9.**
   2. Compare the catalytic activities of compounds **4** and **5**.
   3. Compare the catalytic activities of compounds **7** and **9**.
   4. Compare the catalytic activities ofcompounds **5** and **10**.
5. Read **Glycerol Dehydrogenation and Conversion to Lactic Acid.** You should be able to:
   1. Identify the authors reasoning for the observed difference in catalyic activity between compounds **1-3** and compounds **4-9.**
   2. Identify the authors reasoning for the observed difference in catalyic activity between compounds **4** and **5**.
   3. Identify the authors reasoning for the observed difference in catalyic activity between compounds **7** and **9**.
6. Read **Sulfonate Effect.** You should be able to:
   1. Identify the authors reasoning for the observed difference in catalyic activity between compounds **5** and **10**.
7. Read **Microwave versus Conventional Heating**.
8. Read **Effect of Stir Rate for Microwave Reactions**.
   1. Examine **Figure 6**.
9. Read **Conclusions.**
   1. Examine **Figure 7**.