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Production of olefins via oxidative de-hydrogenation of C3¿C4 fraction by O2 over (Cr¿Mo)SiO2

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GRIN Publishing Mrz 2015, 2015. sonst. Bücher. Condition: Neu. Neuware - Research Paper (postgraduate) from the year 2015 in the subject Chemistry - Organic Chemistry, , language: English, abstract: The present study investigates the oxidative dehydrogenation of propane-butane (C3-C4) fraction over mono (Cr or Mo) and bi-metal (Cr-Mo) loaded SiO2 catalysts. The catalysts were prepared by sequential impregnation method at 500oC calcination temperature. Experiments were performed by feeding C3-C4 fraction, oxygen, nitrogen, and steam into a continuous flow quartz reactor at an atmospheric pressure (P = 1 atm.), reaction temperatures between 500 - 650oC, gas hourly space velocity (GHSV) within 100 - 400 h-1, and at reaction time (tr) = 2h. Appropriate water vapor addition to the feed sinificantly minimizes oxidation into coke deposits on the catalyst surface, and also prevents further olefin conversion into undesirable product. The physicochemical properties were evaluated by BET, XRD, IR, and EPR characterization techniques. The major oxidation products are ethylene, propylene, isobutylene, butylene. This paper reports that the total yield of olefins (C2-C4) = 66.0 % was achieved at 83.5 % conversion level of C3-C4 at 630oC. The results indicate that the addition of Mo to catalysts of Cr/SiO2 modifies its catalytic activity...

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