In 2019 the polypropylene worldwide market is roughly 75 Million MT, which means, to put it in perspective, far over 300 PP plants of 250 kton/yr by taking into account the utilization rate. The growth for PP is still around 3-4% per year.

Ziegler Natta catalysts are since 60 years the most common used catalyst in the production of polypropylene worldwide. Attempts have been taken to look to alternatives, for example metallocenes, but for polypropylene these have not been penetrated the industrial field to a significant amount. To service the polypropylene industry, roughly 2500 ton of catalysts are needed.

GRACE is the largest PP catalyst producer, has its headquarter in Columbia, MD, USA, and due to acquisitions the last 5 years, it has access to catalysts that can be used in all PP technologies. The possibility of levering different heritage expertise opens new possibilities that results in new catalyst offerings that takes the industry to a new level.

One of the biggest undertakings of the last decade is to adjust the 4th generation PP catalyst, containing various phthalates, to non-phthalate alternatives. Often, due to the very fragmented and conservative converter industry and the end-use in the final applications, the resins should ‘mimic’ the already existing resins on the market (i.e. phthalate like behavior). However, these new internal donors could also be used to explore new areas in mechanical and/or secondary properties for polypropylene (i.e. new resins).

When developing and introducing new catalysts, companies are faced with numerous constraints, and new catalyst should perform and operate as good as existing alternatives. It takes a lot of effort, and expertise, to develop small scale tests that can predict behavior of catalyst when used in commercial scale. In this talk I will address some of the challenges that catalyst and polyolefin companies go through in order to find the right catalyst, and to implement those in the various technologies out there.