Abstract:

Natural PHA materials show a much larger application versatility than any other existing material platform can mimic. This "new" family of materials ranges between very crystalline, hard and brittle to amorphous, soft and tough, and everything in between, so one has choices for applications. It also consists of different types of polymer, like PHBH, PHBV and so on and of course these all have different sets of properties. By using smart PHA material combinations we see new and surprising applications coming up more and more, penetrating PMCs that are traditional for plastics as well as those that are not traditional for plastics.

During the past 10 years manufacturing companies have invested billions of dollars to develop and build significant capacity to make these natural PHA materials at industrial scale. The initial application developments focused primarily on those applications where biodegradability in many environments was seen to be an advantage and added value, although these materials fit all possible end-of-life options very well. However …… in addition to applications where biodegradability is an advantage there are many durable applications where these materials are in use already.

An overview will be given of the current manufacturing and capacity expansion activities for each type of PHA polymer and the enormous versatility in applications that have been demonstrated so far with sometimes even surprising performance.