Abstract:

Starting in 2002 the ZBT (Centre for fuel cell technology) is able to realize injection moulding processes for low temperature bipolar plates. By applying Polypropylen (PP) as a matrix one is able to manufacture cell plates in industrial scale, and utilize them in low temperature PEM-stacks. Talking about high temperature applications, the requirements to be met are however much higher. This especially is valid for the cell plate material and its polymer applied, that has to show resistance against permanent high temperatures. Materials suitable for such application can be found in the thermoplastic segment. Due to their high viscosities, thermoplastics are already difficult to handle as a single phase material, and increase this task when processed with filler. Fillers however are needed to meet demanded electric conductivities. According to these very particular requirements an injection moulding process could not be realized up to now, what hindered the introduction of a large scale production of high temperature bipolar plates. Putting such process into practice would outline the marked entrance for this technology. However this can only be realized by synergizing different competencies in an alliance (represented by several European institutes) that will promote research and science at last.

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