Determinition of long-term properties for medical device components

About AstraZeneca
At AstraZeneca we turn ideas into life changing medicines. Working here means being entrepreneurial, thinking big and working together to make the impossible a reality. We’re focused on the potential of science to address the unmet needs of patients around the world. We commit to those areas where we think we can really change the course of medicine and bring big new ideas to life. We conduct our research across three continents, manufacture in 16 countries and work in over 100 countries while our medicines are used by millions of patients worldwide.

Background
Inhalers are devices that are used to deliver medication to the lungs to treat respiratory diseases like asthma and COPD (sv. KOL). Here at AstraZeneca several such inhaler products are produced. These inhalers are complex designs composed of both plastic and metal components. The polymer material qualities that are accepted for use with pharmaceuticals and for medical devices are highly controlled and limited, resulting in extended timelines for finding alternative or replacement materials. To ensure long term supply of materials different strategies could be applied of which one way could be to set up security stocks of the critical materials. The plastic material suppliers normally ensure only limited shelf lives of their products but in most cases the materials can be used for extended periods.

Aim
The aim of this project is to determine the shelf life of the resins for some specified polymer material qualities. This includes identification of relevant material properties, methods for accelerated ageing and suitable test methods. The project will probably involve collaboration with suppliers of injection moulded components as well as practical laboratory work; for example mechanical and chemical testing of components and raw materials.

Student profile
Master of science thesis in polymer technology, chemistry, chemical engineering, material science or equivalent, Students with strong background and interest in polymeric materials are encouraged to apply.

General
The work will be carried out at AstraZeneca. Questions regarding the project are to be directed to Pontus Olin at AstraZeneca (pontus.olin@astrazeneca.com). Examiner and supervisor at Chalmers will be Professor Antal Boldizar, at the department of Industrial and Materials Science, e-mail address antal.boldizar@chalmers.se
Starting date: Autumn 2018 or as agreed
Economic compensation will be awarded upon approval of report.