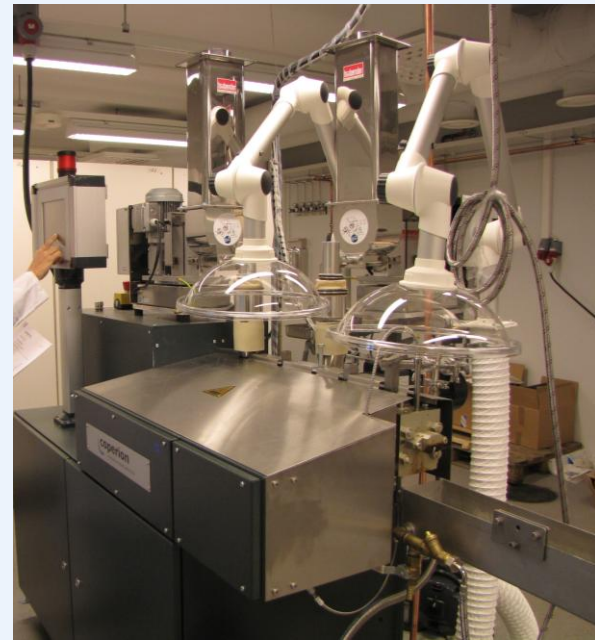


# Centria PlastLab

## *Material development for 3D printing*

### Introduction

The laboratory is equipped with versatile devices for the production and testing of plastics and composites. The equipment includes a twin screw extruder (max. 100 kg/day), a hot press for sheet preparation, a filament maker for 3D printing materials, and a shredder for recycled plastics. In addition, there is a vacuum infusion system for manufacturing composite parts, a tensile tester for measuring the mechanical properties of materials, and an environmental chamber for evaluating the effects of temperature and humidity.



***Twin screw extruder***

### Applications

- Manufacturing various biocomposites and studying the mechanical properties of the materials
- Filament fabrications for traditional FDM 3D printers
- Pellets for robot 3D printing
- Natural fibres can be mixed with PE, PP, PVC, i.e. plastics with a processing temperature of ~200 °C



***Custom filament manufacturing for FDM printing***

### Material testing at Centria

- Mechanical tests after expose to weathering: temperature, humidity and UV
- Mechanical tests of printed samples
- Thermal analysis (HDT, CTE)
- Compositional analysis to determine VOCs from materials

### Materials for 3D printing

#### Centria compounds

- Hemp, fibres and residues from fibre production
- Seaweed
- Birch bark
- Recycled fibres (CF, GF)

#### Fibres from the market

- PP-wood, PP-glass, ABS-carbon, ASA-glass



***Material mechanical test***



***Custom FDM filament***