

SUMMARY

This Master Thesis content is development and manufacturing processes of wooden single-use grill. The aim of this thesis is to develop a single-use grill made from wood. Wood as a natural resource is renewable and environmentally friendly material which can be found in Estonia in large quantities. Design of the product should be simple, and final cost not exceed the cost of the single-use grill made from aluminium.

In this thesis, the literature review of the most common grill types is presented. Among them are traditional, well known examples, such as aluminium grill and kettle grill. Other natural grills are introduced. Fuel materials used for grilling are named. There is gas, charcoals, modern ecological alternatives, pellets and chips. Firelighters, ignition material which is used to light up the fire have involved a lot I resent times. 10 years ago, only known firelighter was a mixture of hydrocarbon liquids. Today wood shavings and fibreboard cubes are used in that purpose.

Development of single-use wooden grill is done according to the customer's needs. Frame of grill is the main point of research, it was analysed the most. Three different prototype frames were manicured; Type A, Type B, Type C respectively. Type A was used the most for the temperature and burning time trials. Burning trials were performed to see for how long frame can last before they fire up completely. Water impregnation was tried to prevent frames from burning. Smouldering time, time when fuel material smoulders without any flames seen is considered as best time for cooking. Cooking temperature should be between 500 – 650° C degrees. For "Ecogrill" product it is around 60 minutes. After this time wood charcoal briquettes, which are used in "Ecogrill" burns out and temperature decreases. New charcoal can be added, and frame is capable to last for three charcoal recharges.

Weight of the grill is around 1.2 kilograms; it is not heavy to be taken to the camping site. Adventures and hikers can take it with them and after it can be left in nature. It has no metal parts; package is made using sustainable plastic film. This thesis has drawings of the design together with the description of the every proses done.