



CASE STUDIES

ENVIRONMENTAL ENGINEERING

GEOSYNTHETICS



## KASTIJUN AND MARIŠČINA WASTE TREATMENT CENTRES

|              |   |  |
|--------------|---|--|
| Product      | <b>JUNIFOL PEHD 2,5 Sa/Sa</b><br><b>geoNETEX A PP 1200 UVLS</b> | 119 000 m <sup>2</sup><br>119 000 m <sup>2</sup> |
| Location     | Pula and Rijeka, Croatia  |  |
| Installation | 2014 - 2015   |  |
| Installer    | HIS d.o.o.  |  |

The individual administrative regions of Croatia are supposed to accommodate their waste management system to the respective requirements of EU till 2018. The centres Kastijun and Marišćina represent reference projects built to serve the districts of Istria (population abt. 200 000, the district town Pazin) and Primorsko-Goranska (population abt. 300 000, the district town Rijeka). Both projects were designed and implemented with an emphasis on environmental friendliness and the use of most up-to-date waste management methods. Both centres comprise several different sections (mechanical-biological waste treatment, stabilized waste dump, disposal site for the other types of waste, seepage water reservoirs, retention basins, co-generation unit, etc.) and all the waste collected in these areas should be processed here. Possible future extension of the capacity of the individual disposal sites (to provide more space for waste that cannot be utilized further) has also been anticipated.

According to the respective EU directive, all waste disposal sites must be located and designed in a manner preventing the contamination of soil plus underground and/or surface water. Both during the landfill's active and passive (after the site has been closed) stages, it is essential to ensure that the environment is not contaminated with seepage water. This requirement is usually accomplished using an insulation multilayer, the most frequently used method being the combination of natural geological barrier and a man-made insulation layer. For the disposal sites of the above waste treatment projects, the following multiple layers of various insulation materials were used:

the subbase material 0,5 m > bentonite mat 5 kg/m<sup>2</sup> > JUNIFOL PEHD geomembrane, thickness 2,5 mm > protective non-woven geotextile geoNETEX A PP 1200 g/m<sup>2</sup> > drainage + protective layer of aggregate 0,5 m > separation + filtration non-woven geotextile 300 g/m<sup>2</sup> > filtration layer of sand 0,25 m

Moreover, in case of Marišćina waste treatment centre, a geomembrane leak detection system was installed. Both centres have been operational since 2015.