Railway Sleepers from Mixed Plastic Wastes

-RAILWASTE-

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SUSPRISE Joint Call Evaluation Workshops with project coordinators – September 23, 2008 – PTJ/Berlin

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**Project Partners**

- **Materials Sorting and Recycling Company:**
PAV GmbH &Co. KG
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- **Materials Development and Environmental Engineering R&D:**
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- **Specialized Machine Building Company for Waste Processing/Extrusion:**
Next Generation Recyclingmaschinen GmbH
Gerold Barth
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- **Funding Agency:** PTJ Berlin Office, Dr. Jacobi
objectives

- to prove feasibility of railway crossties (sleepers) production from mixed plastics post consumer waste

- Characteristics of polymer sleepers:
  - low weight (esp. for points sleepers)
  - damping of noise and vibrations
  - no cracking
  - no biocide requirement
  - long life span

- Sleeper replacement market size in Germany up to 11 mio units (approx. 880.000 t/a)

method / work plan

- Materials selection and processing: post consumer waste materials such as Mixed plastic wastes (MPW) glass fibre wastes auxiliary agents

- Materials development: Compounding technology Fiber-matrix-interaction Foaming

- Process development: combination of fibre processing, foaming, cooling, esp. for shape stability of the profile

- RailWaste Sleeper! defined geometry (e.g. 2,6 m x 0,3 m x 0,2 m), weathering stability load bearing properties low maintenance cost
current project status

- RailWaste project duration
  1.3.08 - 28.02.10

- Formal grant agreements available
  21.5.08

- Kickoff-meeting was held 23.07.08

- Cooperation agreement is signed
  12.09.08

- Materials selection and testing started

- First technical project meeting on Sept. 25, 2008

expected results

- Proof of concept for production of MPW sleepers, and the generation of samples

- Final materials selection

- Sorting requirements

- Compound definition

- Processing parameters

- Processing equipment

conventional sleeper materials: concrete - wood - steel

RailWaste Sleeper
Dr. Jörg Woidasky

- Environmental Engineering Graduate (Berlin Technical University)
- Mechanical Engineering Doctorate (Stuttgart University)
- Primary Investigator at Fraunhofer-Institute for Chemical Technology (ICT, Pfinztal near Karlsruhe/Germany) since 1994
- Director of the Fraunhofer Center for Energy and Environment (Pittsburgh/Pennsylvania) 1999-2000
- Deputy head of the Environmental Engineering Department of Fraunhofer ICT since 2006

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