Step by step

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ISCOWA's practical guideline consists of the following steps :

1. Description of the problem
2. Overview of possible applications
3. Material oriented decision tree
4. Literature research
5. Research and development
6. Market introduction and Quality control
7. PR and exchange of know-how

Step 1 : Description of the problem

- amount of the material in ton per year or month
- source of the material and process and production data
- specific weight
- strength data
- particle size distribution
- pore size and water absorption
- chemical composition (major elements)
- variability / heterogeneity of the material
- other relevant data

Step 2 : Overview of possible applications

- construction of buildings
- infra-structure works
- various other applications

Materials to be used in construction of buildings

- binders or cements
- sand and gravel
- concrete products (pre-cast or pre-fabricated)
- concrete
- clay products (bricks, tiles and pipes)
- sand-lime bricks
- gypsum products

Materials to be used in infra-stucture works

- binders, like cement and bitumen
- sand and gravel
- natural soil and rocks
- asphalt
- concrete
- concrete products
- earth works

Step 3 : Material oriented decision tree

- Search for those applications with the highest added value in the market,
- Search for those applications with the lowest number of activities in terms of transport, process steps and energy consumption.
- Determine for each application the conventional material to be replaced and gather the relevant data about this material.
- It is recommended that the short list contains no more than 5 options placed in order of feasibility.

Step 4 : Conduction of literature research

- Available research results, e.g. consult the proceedings of the WASCON conferences, the journal Waste Management, the ISCOWA Home Page or directly consult a member of ISCOWA.
- Relevant standards regarding the material to be replaced, the production processes other relevant technical data and requirements as well as policy requirements.
- Relevant environmental standards and data.
- Market information.

Step 5 : Conduction of the R&D project

- Step 5 is the actual research and development work. This will identify the number of options and allow completion of the report underlining priorities in the short list
- In this program it is important to conduct the required environmental research, because these data are needed to optimise the product development. Relevant tests, based on national standards are applicable.

Step 6 : Market introduction and quality control

- It is important to fully identify the background and research of the material or product as it is brought to the market. The process can greatly benefit from having an industrial partner in the project.
- Improve market introduction and establish product confidence by devising a scheme for technical and environmental quality control.
- Based on such a scheme, a guarantee can then be given that the material or product will meet all requirements set out in the relevant standards
- It is worthwhile to consider including a life cycle analysis to give data about the fate of the material or product after is application.

Step 7 : PR and exchange of 'know-how'

- It is important to have a PR strategy to market the product. Again this step will benefit from an industrial partner in the project.

- Finally it is important that 'know-how' is shared with others, ISCOWA is available to assist you with our Home Page and via our members.

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