

## Profile View

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### Details

**Title:** German GreenTech company, with an innovative solution to increase the added value of residual materials and biomass, available for sale under acquisition agreement

**POD Reference:** BODE20211025001

**Summary:** A German company has developed a new add-on technology to extract oil from biomass and by-products with high moisture content (up to 80%) without drying. The technology reduces the share of hexane significantly, is very efficient and reduces OPEX (operational expenditure) by up to 80%. The company is looking for a buyer of their IP (intellectual property) under an acquisition agreement.

**Description:** The German client is a leading company providing solutions and leading-edge technologies for extraction and separation of industrial biomass by-products and split waste streams into valuable components.

The IP protected process technology is based on industrial standard processes and working as add-on technology. The extraction works with hexane and other uncritical solvents. Standard hexane extraction is common practice to gain oily components from raw materials and biomass. The equipment is standardized and reasonably priced on the market. Now, the German client has developed very economically and cost-efficient innovative solutions to increase the profit and efficiency benefit of residual materials, e.g., in spent coffee grounds, palm oil residues, orange and citrus peel residues, coconut shells and more. In order to be able to use this extraction, it is only necessary to adapt the improved extraction technology as an element to process parameters and to modify the already existing technique.

The steps will be demonstrated on the example of spent coffee ground:

Basis is that there are large quantities of pure coffee oil in the coffee ground. Initial situation is that extraction material is very fine, the coffee oil is firmly bound in the complex of the substance and the material very tightly pored as well as very moist (residual moisture up to 65%). So far, an essential factor for an economical hexane extraction was the drying of the material down to 10% moisture content. The drying made it uneconomical with the client's technology. To dry materials with residual moisture contents of up to 65% to these values, processes have been developed which were able to extract the entire

oil without drying and independently of the residual moisture and despite unfavourable material properties. This means that depending on the sort of coffee beans used about 23-31 % oil content can be extracted from the total dry volume. This can be realized with the innovative technology from the client, which is working with an improved extraction technology via hexane+solvent. The source material can contain 60% of water and more. Nevertheless, no previous drying is necessary to receive the result of oil extraction of about more than 90%, which is very efficient.

Therewith, it is possible to increase the benefit many times over, while at the same time having less operating costs and much better ecological balance. A more confident sale of the extracted products is another positive more result. In addition to current solutions, the technology described has the potential for other oil plants and oily materials to be possible.

The company plans now to sell the IP and is looking for suitable partners who are interested in the Greentech solution and who want to conclude an acquisition agreement.

**Advantages and Innovations:**

Advantages are:

- Much more cost- efficient than previous methods
- Much less toxic hexane needed (reduced by more than 1/3)
- Cheaper as new solvents are cheaper than hexane
- High profit opportunities
- Highly efficient extraction results (99%)
- Wide range of applications
- Huge and worldwide accessible markets

Processes in terms of extraction:

The state-of-the-art of this technology is that oil can be obtained from biogenic starting materials by mechanical

pressing and/or extraction by using of a solvent like hexane. These two methods are economically applicable under following limitations:

- a) Limited moisture content (20% in industrial scale)
- b) Open-pored starting material
- c) Basic material with a not too small grain size

Note: CO<sub>2</sub> extraction is still under R&D and not used or competitive for large-scale industrial dimensions.

The new method is having the following advantages under the conditions of a so-called moisture extraction:

- a) Moisture content can be up to 80%
- b) It can be waived on pressing or drying
- c) The extractant is reusable
- d) The process is technically simpler and more efficient than comparable processes
- e) The process can be combined and/or added or even integrated into existing plants or manufacturing sites
- f) The method can be applicable with small modifications on standard hexane equipment or plants
- g) The process is much more economical than comparable processes (energy costs down by 90%, first grade efficiency in de-oiling)
- h) At least 99% of the contained oil can be gained
- i) Process reduces toxic hexane by 1/3

Stage of Development:

Already on the market

IPR status::

Other

Patent(s) applied for but not yet granted

Patents granted

Profile Origin:

Other

**Keywords**

Technology 02003006 Prototypes, trials and pilot schemes

Keywords: 02007009 Materials Handling Technology (solids, fluids, gases)  
 02007020 Biobased materials  
 05004002 Extraction  
 05004006 Other Processes

Market Keywords: 08001017 Industrial chemicals  
 08001023 Other chemicals and materials (not elsewhere classified)  
 08002007 Other industrial automation  
 08005 Other Industrial Products (not elsewhere classified)  
 09004008 Other manufacturing (not elsewhere classified)

NACE Keywords: A.01.6.3 Post-harvest crop activities  
 C.10.4.1 Manufacture of oils and fats  
 C.20.5.3 Manufacture of essential oils  
 C.32.9.9 Other manufacturing n.e.c.  
 M.72.1.1 Research and experimental development on biotechnology

## Partner Sought

Type and Role of Partner Sought: Companies or organisations from e.g. Greentech, cosmetic or food sector, who are interested in extraction and/or innovative Greentech technologies and who are interested to buy the IP.

Type and Size of Partner Sought: >500  
 >500 MNE  
 251-500  
 SME <10  
 SME 11-50  
 SME 51-250

Type of Partnership: Acquisition agreement

Considered:

## Client

Type and Size of Client: Industry SME <= 10

Year Established: 2010

Turnover (euro): <1M

Already Engaged in Trans-National Cooperation: Yes

Languages Spoken: English  
 German

Client Country: Germany

### Dissemination

Relevant Sector: Agrofood

Groups: Bio Chem Tech

