Business plan for a DIN SPEC project according to the PAS procedure on "*Fine Bubble Technology - Fine Bubble Induced Gas Flotation Devices - Installation and Operation*"

Status:
For the preparation of DIN SPEC (PAS) after adoption on 2019-8-09

Requests to participate in the project and/or comments on the business plan are to be submitted to peer.schrapers@din.de[1]

Recipients of this business plan are requested to name all patent rights known to them to be relevant to the project and to make available all supporting documents.

Berlin, 2019-08-10 (Release 2)

[1] Applications for participating in the project and comments on the business plan that are not received by the deadline do not need to be taken into consideration. Once constituted, the project workshop will decide whether or not to consider the comments received in good time.

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1. Status of the business plan

- **For public commenting (Version 1)**

  This business plan is intended to inform the public of a new DIN SPEC project. Any interested party can take part in this project and/or comment on this business plan. Please send any requests to participate or comments by e-mail to peer.schrapers@din.de.

  Once this business plan is published, the Chairman of DIN's Executive Board decides whether or not the project is to be carried out.

  If the project is accepted, all those who have applied for participation or have commented on the business plan by the deadline will be invited to the kick-off meeting of the project consortium.

- **For developing the DIN SPEC (PAS) adoption on 2019-08-09**

2. Initiator and other consortium members

- Initiator:

Person/Organization	Short description
Dr.-Ing. Matan Beery akvola Technologies GmbH Am Borsigturm 100 13507 Berlin E-Mail: beery@akvola.com Phone: +49 30 959 998 950 Webpage: www.akvola.com	Matan Beery is a Chemical Engineer and a graduate of both the Technion (IL) and the TU Berlin (DE). He is a water treatment specialist and the founder and Managing Director of akvola Technologies. akvola Technologies is a water technology company focused on design, manufacturing and sales of water cleaning equipment used to treat industrial wastewaters.

- Other potential participants:

This DIN SPEC will be developed in a consortium (temporary body) that is open to any interested party. The participation of other experts would be helpful and is desired. It is recommended that

- Engineering, Procurement and Construction (EPC) companies
- Manufacturers of fine bubble generators
- System integrators specialized in flotation
- Manufacturers of fine bubble measurement devices
- etc.

take part in the development of this DIN SPEC.

- Organizations that have registered for participation:

Person	Organization
Dr.-Ing. Matan Beery	akvola Technologies GmbH
Gerrit Foerster	BESINO Environment Ltd.
Dr. Piotr Wiliński	WATERSYSTEM
Peer Schrapers	DIN

- Organisations that have adopted this business plan (consortium members):

Person	Organization
Dr.-Ing. Matan Beery	akvola Technologies GmbH
Gerrit Foerster	BESINO Environment Ltd.
Dr. Piotr Wiliński	WATERSYSTEM
Johanna Schulz	akvola Technologies GmbH
Mateusz Brzeziński	WATERSYSTEM

3. Objectives of the project

3.1. General

Fine bubble induced gas flotation can be used to produce gas microbubbles for waste water treatment. Unlike the more common flotation technology, Dissolved Air Flotation (DAF), induced gas flotation does not require dissolving gases in a liquid, recirculating a fluid or swinging of pressure levels. Instead, induced gas flotation simply injects compressed air at a low above-atmospheric pressure through a fine diffusor inducing the formation of fine bubbles mechanically without a phase-change. Induced gas flotation could generate similar separation and removal efficiencies with a fraction of the energy consumption, less equipment and simpler process dynamics.

Currently there are no standards or norms for using this technology. This DIN SPEC should assist users (EPCs, OEM, plant operators) in installing, operating and technically maintaining such devices in good conditions. As a result, a more energy efficient and simpler flotation technology could be made popular in the water industry. The outcome would mean an improvement of current water treatment chains.

3.2. Planned scope

This DIN SPEC describes the proper installation, operation and troubleshooting of fine bubble induced gas devices for flotation in wastewater and other fluid treatment.

NOTE: Fine bubble induced gas flotation devices can be used to treat wastewaters and other fluids such as:

- spent metalworking fluids (cutting fluids, wash water)
- wastewater from paper industry
- wastewater from food & beverage plants
- wastewater from the oil and gas industry
- surface water (including seawater)

3.3. Related activities

The subject of the planned DIN SPEC is not at present the subject of a standard. However, there are bodies, standards and/or other technical rules that deal with related subjects and thus need to be taken into account - and involved or incorporated, where necessary - during this project:

- NA 062-08-12 AA *Fine bubble technology*
- ISO/TC 281 *Fine bubble technology*

4. Work programme

4.1. General

The aim of the project is to develop a DIN SPEC according to the PAS procedure (see www.din.de/go/din-spec-en). The DIN SPEC shall be consistent with the body of German standards and shall not contradict any DIN Standard.

The kick-off meeting took place on 9th of August in Berlin at the venue of DIN. The project duration will be about 6 months.

At this meeting, the consortium for developing the DIN SPEC has been constituted, and further organizational issues and the subject of the work were agreed on.

A draft for public commenting will not be published.

2 additional project meetings will also be held and 0 web conferences are planned, during which the content of the DIN SPEC will be presented, discussed and adopted. The content of the DIN SPEC can also be drawn up by individual consortium members or in working groups.

Dates of further meetings and/or web conferences are to be agreed on within the consortium in consultation with DIN.

The DIN SPEC will be drawn up in English (language of meetings, minutes, etc.). The DIN SPEC will be prepared and published in English.

NOTE The calculation covers only one language version. Please keep in mind the fact that other language versions involve additional expenses; for this reason, they shall be agreed on separately. If another language version is desired, Beuth Verlag/DIN can provide a translation. Requests for translations are to be submitted after the DIN SPEC manuscript has been adopted for publication.

5. Resource planning

Each consortium member shall bear the costs of participation in the project.

If the DIN Executive Board approves the project, the initiator of the project will then conclude a contract with DIN and Beuth Verlag.

The performance of this project will incur costs for DIN to a total of 20.884 €, excluding VAT.

Sharing the burden of these costs is a prerequisite for membership in the consortium.

By approving this business plan, consortium members declare their willingness to bear their share of the project costs, which is based on the number of consortium members.

Each consortium member is to declare this willingness to take on his/her share of costs by individual agreement with the initiator.

If the consortium is expanded later, the additional consortium members shall pay the initiator the same fee to cover costs as the original consortium members. Any surplus arising from this shall be managed in trust by the initiator and shall be used for any additional project-related purposes (e.g. testing, marketing activities, etc.). Should there still be a surplus once the project has been completed, this shall be divided up among all consortium members.

6. Rules of cooperation in the DIN SPEC (PAS) consortium

This project is governed by the rules of procedure for developing DIN SPEC PAS. All interested parties and consortium members are to inform themselves of these procedures by going to www.din.de/go/din-spec-en.

The consortium will be constituted during the course of the kick-off meeting. The kick-off meeting will not take place until the business plan has been published and approved by DIN's Executive Board. The consortium shall

comprise at least three members from different organizations[2]. It is not necessary that these members come from different areas and represent different stakeholders. By approving this business plan, the interested parties declare their willingness to participate in the consortium and will be formally named as consortium members, with the associated rights and duties. Participants at the kick-off meeting who do not approve the business plan are not given the status of a consortium member and are thus excluded from further decisions made during the kick-off meeting and from any other decisions regarding the project.

If an organization (e.g. an association) sends someone who is not an employee to the consortium, this person shall be authorized by the organization, who shall provide proof of this to DIN.

Each consortium member is entitled to vote and has one vote. If an organization sends several experts to the consortium, that organization has only one vote, regardless of how many consortium participants it sends. Transferring voting rights to other consortium members is not permitted. During voting procedures, decisions are passed by simple majority, not counting abstentions.

As a rule, the consortium is closed once it is constituted. The current consortium members shall decide whether any additional members will be accepted or not.

During the kick-off meeting, the consortium members shall elect a consortium leader, who is responsible for content management and any decision-making and voting procedures. The leader is supported by the responsible DIN Project Manager, whereby DIN will always remain neutral regarding the content of the DIN SPEC. Furthermore, the DIN Project Manager shall ensure that DIN's rules of procedure, rules of presentation, and the principles governing the publication of DIN SPEC have been observed Should a consortium leader no longer be able to carry out his/her duties, the DIN Project Manager shall initiate the election of a new leader. The core task of the consortium leader is content management.

The DIN Project Manager is responsible for organizing and leading the kick-off meeting, in consultation with the initiator. Further project meetings and/or web conferences shall be organized by the DIN Project Manager in consultation with the consortium leader.

If consortium members cannot be present when the DIN SPEC or its draft is adopted, an alternative means of including them in the voting procedure shall be used (e.g. in writing, electronically).

[2] Organizations are participating legal entities that send the experts to the DIN SPEC PAS consortium and are assigned to a corporate structure as defined by § 15 of the German Stock Corporation Act or § 271 paragraph 2 of the German Commercial Code.

All consortium members who voted for the publication of the DIN SPEC or its draft will be named as authors in the Foreword, including the organizations which they represent. All consortium members who voted against the publication of the DIN SPEC or its draft, or who have abstained, may not be named in the Foreword.

The previous consortium members decide on a subsequent extension of the consortium. It is particularly important to note that

a) the enlargement is conducive to shortening the duration of the project or to avoiding or averting an imminent delay in the planned duration of the project;
b) the extension does not lead to an impending extension of the duration of the project;
c) c) the new consortium member does not address any new or complementary issues beyond the scope of application defined and approved in the business plan;
d) the new consortium member brings complementary expertise to the consortium in order to bring in the latest scientific knowledge and state of the art;
e) the new consortium member actively participates in the manuscript work by submitting concrete but not abstract proposals and contributions.
f) f) the new consortium member ensures an increased application of DIN SPEC.

To allow the legal reproduction and distribution of results for the purposes of project work, the consortium members grant DIN rights of use on the basis of the copyright that will accrue to them for the results of their work on the DIN SPEC. The transfer of these utilization rights does not prevent the consortium members from using and further developing the knowledge, experience and findings they bring to the project.

Consortium members are requested to inform DIN of all patent rights known to them to be relevant to this DIN SPEC project.

Subsequent changes to the scope of application (Section 3.2) or to the resource planning (Section 6) require, in addition to a two-thirds majority of all votes cast, the approval of DIN.

7. Contacts

- Consortium leader:

  Dr.-Ing. Matan Beery
  akvola Technologies GmbH
  Am Borsigturm 100
  13507 Berlin
  Phone: +49 30 959 998 950
  Fax: +49 30 959 998 966
  E-Mail: beery@akvola.com

- Project Manager

  Peer Schrapers
  DIN Deutsches Institut für Normung e. V.
  Am DIN-Platz
  Burggrafenstr. 6
  10787 Berlin
  Tel.: + 49 30 2601- 2711
  Fax: + 49 30 2601- 42711
  e-mail: Peer.Schrapers@din.de

- Initiator:

  Dr.-Ing. Matan Beery
  akvola Technologies GmbH
  Am Borsigturm 100
  13507 Berlin
  Phone: +49 30 959 998 950
  Fax: +49 30 959 998 966
  E-Mail: beery@akvola.com

Annex: Project schedule (preliminary)

DIN SPEC project	2019																					
	Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
Initiation																						
1. Request and review																						
2. Business plan drawn up																						
3. Publication of business plan																						
Development phase																						
4. Kick-off meeting / consortium constituted																						
5. DIN SPEC (PAS) drawn up																						
6. DIN SPEC (PAS) adopted by consortium																						
Publication																						
7. Review and release by DIN																						
8. Publication of DIN SPEC (PAS)																						
Milestones													**K**		**M / W**			**M / A**				

K Kick off
M Project meeting
W Web conference
A Adoption of DIN SPEC (PAS)