

GSE (Gas Safety Evaluation)

Preamble:

In order to ensure the safety of the fair-visitors, other exhibitors and any other persons which are present on the premises of the Deutsche Messe AG (DMAG), you are asked to answer a few questions as basis for the simplified risk-assessment for the permission to exhibit and operate any piece of technology using, containing or producing any other gas than air.

“efficientics” has been contracted by the DMAG to handle this process and is entitled to receive the ready-filled questionnaire (GSE Questionnaire), as well as getting in contact with the supplier of information. It is of great importance that the information you are supplying is consistent and complete in order to avoid unnecessary clarifications.

However, if you cannot answer one or more questions, please return the GSE Questionnaire as early as possible in order to allow enough time for clarification.

When answering the questions, please note the following:

- The examples given (e.g.) are not the admissible limits. They are given as examples how the exhibitor should indicate his specific information on the system or component he is intending to exhibit or operate. Additional information can be obtained from the “*Technical Regulations of the DMAG*” and the “*Supplement to the technical regulations of Deutsche Messe AG governing the use of hydrogen*”
- Please indicate all numbers with the corresponding SI-unit (kg, litres, m³, bar, ...)
- If you cannot answer one specific question, please type „*unknown*“ in the respective field. In this case it may be necessary to have a separate discussion and you may be contacted in order to clarify.
- Please use the „*additional remarks*“ field for any additional remarks and explanations which may be required to describe the process, the safety concept or any other information which may be relevant to judge on the safety of the system or component.
- If you have a data-sheet, operation manual, drawing of the set up of the system or component or any other information which can be used for assessing the risk arising from exhibiting or operating the system or component during the fair, please supply those by sending them in electronic format. Confidentiality is assured by a confidentiality agreement between efficientics and the DMAG.
- The exhibitor shall indicate all possible hazards which can arise from exhibiting and operating any system or component during the fair, which includes its transport, installation, commissioning and removal from service.
- The exhibitor takes full responsibility for any consequences which may arise from the presence of the exhibited system or component on the premises of the DMAG.

Explanation of information required in the GSE sheet:

Exhibiting entity:	Complete official name of the exhibiting entity with complete address
Name of responsible:	Complete name of the person responsible for the technical organisation of the booth. This person should be competent in the exhibited technology and be available for requests concerning the safety of the exhibited and possibly operated technology. You can also indicate two different persons
Contact Telephone:	Please indicate the complete telephone-number (with country-code) of the person responsible. Preferably this should be a GSM number in order to contact that person even outside business hours. If you should have indicated two different persons, please also indicate the second telephone-number.
Exhibition hall number:	Number of the hall or area, in which the booth is located. If this should be the outside area, please indicate „outside“ with a brief description where the booth is located.
Booth number:	Number of the booth (e.g. E52). You will find this number on your booking confirmation.
Exhibited technology:	Please list the exhibited pieces of technology / systems with their basic parameters (e.g. <i>fuel cell system with 5kWel</i>) and give a short description of the process and the single components (e.g.: <i>Hydrogen bottle, pressure reduction valve, flexible hose, fuel cell system, battery charger</i>). For standard processes (<i>fuel cell system / electrolyser / battery charger / ...</i>) it is sufficient to mention this standard process. If the standard process should have any functionalities which are not assumed to be a general standard and need further explanation, please describe, which those deviations are.
Operation frequency:	Please indicate the intended time of operation of the exhibited system or component (e.g. „1h/day“ or „once a day for 15 Minutes“ or „continuously“ or „upon request by visitor“). Please note that the „standby“ mode of the system or component shall also be considered as „operation“, as the gas supply is connected and manual valves are usually in the „open“ position. Please note that it will not be permitted to have systems or components in operation without supervision of a competent person. During the closing-hours of the fair (overnight), all systems and components have to be switched off, purged and depressurized. If this should not be possible, please comment and ask for an exception.

- Operating media:** Please indicate the different media necessary for the operation (*also for start-up, standby, operation and switching off*) of the exhibited system or component (e.g. *1 hydrogen cylinder at 200 bar with 20 litres, 2 nitrogen cylinders at 200 bar with 10 litres, deionised water at a pressure of 2 bar, 1 carbon dioxide cylinder at 200 bar with 50 litres, electricity with 230VAC, fused with 16A, cooling water at atmospheric pressure, ...*).
- Please also indicate if voltages >60VDC or > 25 VAC are required (e.g. *for an electrolyser, battery-charger or lamps*). In this case, adequate means of protection against direct and indirect contact are required. In any case, short-circuiting shall not lead to any dangerous situation.
- Produced media:** Please indicate which media (*gases, liquids and solids*) are produced during the operation of the system or component (e.g.: *production of 20l/h hydrogen at atmospheric pressure*). Please also indicate the amount of media which are being released or are escaping from the system or component during regular start-up, stand-by, normal operation, emergency operation and shut-down of the system or component (e.g. *1m³ of Nitrogen during start-up, 10L/h of atmospheric hydrogen in stand-by mode, 20L/h of atmospheric hydrogen during normal operation, 200L of hydrogen at 2 bar during emergency shut-off and 100L of hydrogen-nitrogen mixture during shut-down*).
- Please also indicate if voltages >60VDC or > 25 VAC are being produced (e.g. *by a fuel cell system or any electronic device*). In this case, adequate means of protection against direct and indirect contact are required. In any case, short-circuiting shall not lead to any dangerous situation.
- CE Conformity:** Please indicate if ALL systems and components are CE marked or if any of the components used does NOT have CE marking. In case that at least one component does NOT have CE marking, please indicate the standard which it complies with (e.g. *ASME, UL, ANSI, ISO, JSA, CCC, IST, GOST, ...*). If that specific component does not comply with any standard or has not yet been certified, please explain why (e.g. *„prototype fuel cell“ or „no standard available / applicable“*).
- Staff responsibilities:** Please indicate, which responsibilities the staff at the booth has (e.g.: *changing of gas-cylinders, checking leak-tightness of the system or component prior to start up, operating of the system or component, surveillance, switching off, handling of gas-cylinders, intervention in case of a malfunction*).

- Staff abilities:** Please describe which specific abilities the operator of the system or component has (*e.g. training in handling dangerous substances, high-voltage training, first aid-training or others*). Please note that the system or component shall only be operated by a competent person, if special abilities are required.
- Safety precautions foreseen:** Please indicate which specific safety precautions are foreseen to prevent accidents while the exhibited system or component is switched off (*outside the opening hours of the fair*), during the starting-up phase of the system or component, operation or shutting down. Please note that those safety precautions shall also take into account situations which are caused by malfunction of components, misuse and other abnormal situations.
- Pre-service testing:** Please indicate if a “pre-service testing” is required, what single tests are conducted for the exhibited system or component and who will conduct this test at which date (*e.g.: Yes, a pre-service testing is required and will be done by ... on April 4th 2014. The test comprises a leak-tightness of the connections and a measurement of the grounding-resistance*). If such a pre-service testing is required, a copy of the reports shall be forwarded to efficientics.
- Additional remarks:** Please indicate any additional information which can support the assessment of safety of the system or component and to understand the safety concept you have developed to protect the visitors and your employees. If that information should be in a different format than text or is too complex to be inserted into the GSE Questionnaire file, please send it in electronic format.

Return address for the filled questionnaire by e-mail:

efficientics

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