

5108 **10 Questionnaire**

5109 **10.1 Objective of the questionnaire**

5110 The objective of the questionnaire is to **validate** and, if necessary, **correct** and **complement**
5111 the techno-scientific information that provides the foundation for the proposed STRUBIAS
5112 material requirements outlined in this Interim Report. It is requested to **concentrate review**
5113 **efforts on the sections 5 - 8**, as your input on the sections 3 and 4 has already been taken
5114 into consideration when processing your feedback on the Background Document for the
5115 STRUBIAS Kick-off Meeting.

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5117 **10.2 Procedure**

5118 As outlined in the Rules of Procedure of the STRUBIAS sub-group, the sub-group member
5119 representatives shall actively collect information and deliver fact-based opinions on the
5120 questionnaires that form part of the written consultations. It is important that **STRUBIAS**
5121 **sub-group member representatives provide a consolidated opinion that is in line with**
5122 **the views of the member organisations and stakeholders they represent.**

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5124 Unfortunately, the JRC is not able to accept responses and opinions from organisations and
5125 individual persons other than official STRUBIAS member organisations and their selected
5126 representatives. The JRC recommends any third party organisations or persons interested in
5127 contributing to this work to contact one of the member organisations of the STRUBIAS sub-
5128 group⁵. These STRUBIAS members carry the full responsibility for the quality of the
5129 information sent to the JRC and may therefore decide to take any external input on board in
5130 their reply, or not, after careful consideration and thorough quality-checking.

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5132 The STRUBIAS sub-group members **shall support their opinions with objective and**
5133 **evidence based arguments**. In case of disagreement with the present proposals for nutrient
5134 recovery rules, sub-group members shall provide alternative proposals for alternative
5135 formulations along with supporting robust techno-scientific data and information.

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5137 Sub-group members shall use the channels provided by the Commission for discussion and
5138 information exchange. The preferential route for submitting non-confidential information is
5139 via the **CIRCABC platform** as this will facilitate a structured information exchange amid
5140 STRUBIAS members. Detailed instructions on how to access the CIRCABC STRUBIAS
5141 Interest Group were distributed to sub-group members via e-mail.

5142 Please upload any information in the folder/space entitled "Interim Report – Market study",
5143 and then select the matching sub-folders "Written feedback from sub-group". The document

⁵ The list of Members of the STRUBIAS sub-group can be found in the Register of Commission Expert Groups
→ Fertilisers Working Group (E01320)
(<http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=1320>)
→ Tab "Subgroups" → Subgroup of the Commission expert group on Recovery Rules for Fertilising Products

5144 name should start with the acronym of the member organisation. Please note that all
5145 information that is uploaded in this CIRCABC folder is publically available. Techno-
5146 scientific literature can be uploaded in the corresponding sub-folder that is only accessible to
5147 STRUBIAS sub-group Members.

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5149 The JRC prefers to receive publically available information in order to support a transparent
5150 information exchange process. Nevertheless, it is accepted that some data cannot be made
5151 public and should be handled in a **confidential manner**. If only the data provider or data
5152 source is confidential, but not the data itself, it is desirable that member organisations
5153 anonymise the data provider/source and upload the document on CIRCABC as indicated
5154 above. Confidential data that cannot be publicly shared in any form should be sent via e-mail
5155 to JRC-IPTS-FERTILISERS@EC.EUROPA.EU. The document name should include the
5156 acronym of the organisation followed by the word "confidential".

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5158 The JRC is pleased to take into account any feedback on the questionnaire received from the
5159 STRUBIAS sub-group members **until the deadline of Thursday 15 March 2018**. We
5160 guarantee that any input received by the deadline will be taken into account for the further
5161 work.

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5163 **10.3 Questions**

5164 **Section A: General question**

5165 *A.1. Have you noticed any incorrect or obsolete techno-scientific information in the Interim Report that has an important influence on the market for STRUBIAS materials? If your observation involves an alternative proposal for the STRUBIAS material requirements, please indicate, substantiate and upload supporting techno-scientific information.*

5169 Provide your feedback in a structured, tabular format with following headings: observation, page/line numbers and section in the document, correction and/or alternative proposal, 5171 techno-scientific rationale that supports the comment raised, reference to techno-scientific 5172 data.

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observation	location in document	correction/ alternative proposal	techno-scientific rationale that supports the comment raised	reference to techno-scientific data
e.g. sales prices for mineral P-fertilisers are underestimated by 30%.	e.g. section 2.3.7.2 (line 2864)	e.g. sales prices vary from X to Y EUR	The data found in IFA report (2017).	e.g. IFA. (2017) has been uploaded on CIRCABC

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5175 **Section B: Specific questions and further data**

5176 Please note that all the queries of this section correspond to the questions given in specific
5177 sections of the document.

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5179 **Question 1 on sales prices of STRUBIAS materials on the market (section 7.1.3):**

5180 Please provide an indication of:

- 5181 a) the sales prices of STRUBIAS materials and mono-incineration ashes on the market
5182 (Euro per tonne material and P concentration, or Euro per tonne P; indicate if prices are
5183 "Free on Board (FOB)" or "CFR (Cost and Freight)" with an indication of the price for
5184 transport).
- 5185 b) Indicate also the physical form of the material (powder, granules, other relevant physical
5186 parameters), and to whom materials are sold (blending companies, retailers, end users,
5187 etc.).
- 5188 c) If available, please provide an evolution of the average sales prices in the last decade in
5189 order to determine the main factors affecting fertiliser price and their relative importance.

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5192 **Question 2 on compliance costs (section 7.3):**

5193 Please provide information on the following elements that form part of the compliance costs:

- 5194 a) Cost for REACH registration for fertiliser end-material that will be brought on the
5195 market.
- 5196 b) Cost for compliance under already existing national end-of-waste or similar regimes
5197 that enable a market entry for fertilising products derived from STRUBIAS
5198 materials.
- 5199 c) Estimated cost for compliance for P-fertilisers derived from primary raw materials.
- 5200 d) For facilities that process waste-based materials, information on the cost associated
5201 to acquiring waste permits in different EU Member states for non-hazardous and
5202 hazardous waste materials. Notably, the costs associated to complying with the
5203 obligation for an establishment or undertaking carrying out waste management
5204 operations to have a permit or to be registered in accordance with Article 23-26 of
5205 the Waste Framework Directive 2008/98/EC.
- 5206 e) Cost of sampling and analysis through accredited laboratories:

5207 *Recovered phosphate salts:*

- Nutrients: P, Ca, Mg, citric-acid P
- Metals and metalloids: As, Cd, Cr (total), Cr (VI), Cu, Hg, Ni, Pb, Zn
- Persistent organic pollutants: PAH16
- Biological pathogens: E. coli or Enterococcaceae & Salmonella spp.
- Others: macroscopic impurities, dry matter content, particulate matter < 100 µm.

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- 5214 *Ash-based materials:*
- 5215 - Nutrients: P, K, Ca, Mg, S, citric-acid P
- 5216 - Metals and metalloids: As, Cd, Cr (total), Cr (VI), Cu, Hg, Ni, Pb, Zn, B, Ba,
- 5217 Co, Mn, Mo, Sb, V
- 5218 - Persistent organic pollutants: PAH16, PCB, PCDD/F
- 5219 - Others: pH and neutralising value
- 5220 *Pyrolysis materials:*
- 5221 - Major elements: C, Corg, P, K, Ca, Mg, S
- 5222 - Metals and metalloids: As, Cd, Cr (total), Cr (VI), Cu, Hg, Ni, Pb, Zn, Ba, Co, Mo,
- 5223 Sb, and V
- 5224 - Persistent organic pollutants: PAH16, PCB, PCDD/F
- 5225 - Biological pathogens: E. coli or Enterococcaceae & Salmonella spp.
- 5226 - Other: pH, neutralising value, macroscopic impurities, particulate matter < 100 µm,
- 5227 particle density, volatile organic matter, specific surface area earthworm avoidance
- 5228 test (ISO 17512)
- 5229
- 5230 Where analysis packages are available (e.g. sampling + analysis of a series of
- 5231 metals, PAH16, PCB and PCDD/F), please clearly state what the package contains
- 5232 and its cost.
- 5233 f) Measurement standards currently applied (national standards, ISO/EN standards,
- 5234 etc.)
- 5235
- 5236 **Question 3 on possible economic benefits and drawbacks (section 7.4):**
- 5237 Please provide information, preferably in a quantitative manner, on following possible
- 5238 economic benefits and drawbacks of producing fertilising products containing STRUBIAS
- 5239 materials compared to equivalent mined and synthetic inorganic fertilising products.
- 5240 a) reduced waste compliance costs (e.g. changes in the economic valuation of sewage
- 5241 sludge ashes, etc.);
- 5242 b) reduced externalities (e.g. avoided costs due to eutrophication, positive effects on
- 5243 human health due to reduced contaminant levels, etc.);
- 5244 c) potential job creation in production and downstream fertiliser distribution and
- 5245 farmer's cooperatives; please relate expected STRUBIAS production volumes to
- 5246 number of persons employed.
- 5247 d) impacts on the rural economy;
- 5248 e) benefits of restoring soil organic carbon for soil fertility;
- 5249 f) cost associated to new logistics for recovered nutrient products;
- 5250 g) implications for the restructuring the production and distribution of fertilising
- 5251 products;
- 5252 h) agricultural equipment adaptations.

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5255 **Question 4 on slags from the metallurgic industry (section 8.2.8):**

5256 Please provide an outlook for slags from the steel industry that are intended for use in
5257 agriculture. More specifically, information is requested on following aspects:

- 5258 a) Evolution in supply and demand for steel industry slags that are used as P-fertilisers in
5259 agriculture, as well a realistic outlook for the market outlook for the year 2030. Please
5260 express numbers in absolute tonnes of material per year, indicating the P concentration, or
5261 in kt P per year. Please provide separate datasets for different types of slags (blast furnace
5262 slag, basic oxygen slag, etc.).
- 5263 b) Data on the content of metals/metalloids (specifically B, Ba, total Cr, Cr (VI), Co, Cu,
5264 Hg, Mn, Mo, Ni, Pb, Sb, and V) in the different types of slag. Please provide full datasets
5265 or descriptive statistics indicating the 10th, 25th, 50th, 75th and 90th percentile of the
5266 distributions.
- 5267 c) At present, it remains unclear if the production process is adapted in order improve the
5268 quality of the resulting slag, or if any supplementary processing is performed on the raw
5269 slags obtained to increase their value as a fertilising material. Please provide any relevant
5270 information.
- 5271 d) Information on the relative agronomic efficiency of different output STRUBIAS
5272 materials.
- 5273 e) Evolution of the average sales prices of steel industry slags in the last decade and future
5274 outlook (Euro per tonne material and P concentration, or Euro per tonne P).

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5277 **Question 5 on additional STRUBIAS pathways that should be considered for the 2030**
market assessment (section 8.2.9):

5279 Please indicate any additional process pathways that result in the formation of P-fertilisers
5280 (pursuant definition and criteria of P-fertilisers as given for PFC 1 in the proposal for the
5281 Revised Fertiliser Regulation) and describe their market outlook in term of volumes of P that
5282 could be produced by the year 2030. The proposed pathways should meet following
5283 conditions:

- 5284 a) Derived from eligible input materials for each of the three STRUBIAS material groups as
5285 outlined in JRC Interim Report on nutrient recovery rules as distributed in May 2017 or
5286 derived from eligible input materials that were not listed, but are nonetheless in line with
5287 environmental and human health safety aspects and agronomic efficiency as indicated by
5288 techno-scientific evidence.
- 5289 b) Associated to a technological readiness level of stage 6-9.
- 5290 c) Realistic from an economic point of view based on the current and expected costs/gate
5291 fees for input materials, production processes, and revenues of generated output materials

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5293 **Question 6 on market aspects for STRUBIAS materials other than P-fertilisers (section**
5294 **8.3):**

5295 Please provide an outlook for STRUBIAS materials other than P-fertilisers, as well as their
5296 targeted PFC entry in the revised Fertiliser Regulation (i.e. liming material, soil improver,
5297 etc.). Please express numbers in absolute tonnes of material per year, and situate the numbers
5298 relative to the total PFC volumes applied in the EU-28 agricultural market. Also information
5299 on sales prices/gate fees of the end-materials is welcomed. More specifically, information is
5300 requested for following two materials:

- 5301 a) C-rich pyrolysis materials in conventional agriculture, organic farming, and greenhouse
5302 farming (i.e. as a growing media);
5303 b) Ashes generated by the forest-based industry, including the pulp and paper industry;

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