



## ENQUIRY in support of a review of identified corrosion issues pertaining to biorefining.

**CONTEXT:** Key milestone defined in a collaborative project named ECORBIO (2012-2015) supported by Conseil Régional de Picardie and FEDER (EU).

**PURPOSE:** Establish an overall assessment of corrosion issues pertaining to this sector of activity and identify research priorities that would allow improved corrosion control in related domain.

### ENQUIRY

To be forward, after completion:

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1. Considering your activity so far dealing with bio-sourced portfolio of products and/or energy vectors, do you consider corrosion concern?

- as an actual issue.....
- under full control nowadays .....

2. Do preventive or corrective maintenance operations induce significant impacts in terms of?

- CAPEX .....
- OPEX .....

relating to equipment that you are manufacturing or using?

3.1. Corrosion issues that you are facing principally classify as?

- external corrosion problems.....  
eg. atmospheric corrosion, or metallic corrosion under insulation layers)
- internal corrosion of equipments and/or pipeworks .....



**3.2. Dealing with corrosion process, main observed corrosion mechanisms do affect corroding systems?**

- in a regular/uniform way .....
- as localized attack .....

**4. Considering you confirm actual issues regarding corrosion so far you are concerned, in which areas of biorefining do these issues reveal:**

- pretreatment units .....
- conversion units .....
- separation/purification units .....
- storage facilities .....
- other equipment .....  
(e.g. heat exchanger, linking pipeworks, other systems contributing to energy and process water integration or optimization of carbon conversion efficiency)
- not pertinent in my case .....

**5. In relation with answers provided in question 4, how were designated corrosion issues first revealed?**

- through bibliographical survey relating to same equipments/processes .....
- non destructive controls .....
- corrosion potential of key products involved in concerned value chain .....
- inspections/investigations after malfunctioning/failure of equipment.....
- informal exchanges with other concerned stakeholders (equipment providers or others) with similar equipments or incident feedback from similar equipment .....
- quality issues in formulated end-products .....
- following modification in original equipment/or process intensification.....
- other way .....



**6. Identified “corrosion environments”?**

- recycled process water in contact with carbon steel.....
- mineralized fraction of biomass combustion products.....
- hot temperature corrosion influenced by chlorides .....
- hot temperature corrosion influenced by sulfidess .....
- vapor condensation areas in relation with energy integration .....
- process juices containing insolubles.....
- moisture condensation under insulation blanket.....
- action of micro-organisms, enzymes or related metabolites.....
- nothing to report.....

**7.1. Do you have the feeling to perfectly master corrosion potential of key materials entering your concerned value chains ?**

YES ....

NO ....

**7.2. In case of negative response at preceding question, for what reasons?**

- shortcomings/missing information from official labeling of substances or MSDS
- impacts of impurities
- complexity of corrosion processes
- iterative interaction corrosive environment/corroded material
- presence of undesirable (sometimes not identified) substances taking part of the corrosion process

**8. Do you consider we have access to all tools needed for?**

- corrosive phenomenon diagnosis .....
- prediction of remaining operational life time of affected equipment .....
- for design and implementation of prevention/protection measures to put corrosion under control in the biorefining sector .....



9. Considering you support the statement that dedicated research regarding corrosion is justify to accompany sustainable development of bio-sourced value chains from biorefining, what priorities would you quote?

- research Priority 1:

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- research priority 2:

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- research priority 3:

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10. Would you agree contributing anyway to the project ECORBIO?

- in participating in the final workshop organized under leadership of CETIM/INERIS (prescheduled summer/early autumn 2015) .....

- in another way:

- interview on the topic with one key actor of the ECORBIO research consortium.....
- providing data on corrosion field experience.....
- by suggesting further contacts with key learned persons .....

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- by suggesting focused work to perform .....

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- other .....

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**11. Additional information we kindly ask you to provide:**

- your name/institution/address (treatment of data will be done anonymously)

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- business domain

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**Anyother usefull information/comment you would like to add beyond answers provided to preceding queries.**

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