CDM: Response form for Request for revision of approved methodologies (version 01.1)

Date of Meth Panel meeting:	7 - 11 March 2011
Title and number of Request for revision	Revision of AM0028 to expand applicability to thermal decomposition of N_2O version 5 AM_REV_0202

Summary of the query:

Please use the space below to summarize the request for revision on the related approved methodologies.

The request for revision proposes the amendment of the approved methodology AM0028, version 5 "Catalytic N_2O destruction in the tail gas of Nitric Acid or Caprolactam Production Plants", in order to accommodate N_2O destruction project activities employing thermal decomposition in conjunction with a Selective Non-Catalytic Reduction (SNCR) equipment to reduce NO_X emissions.

Currently, the methodology is applicable to catalytic decomposition or reduction only. The operation temperature of around 400-500 °C strongly implies the combination with a Selective Catalytic Reduction (SCR) De-NO_X unit. Both, the N_2O and the NO_X destruction unit are located in the pressure zone of the facility. As a combination of SNCR with catalytic N_2O destruction is technically not favourable, no provisions for the SNCR De-NO_X process are given in the current methodology.

In order to accommodate this case in AM0028, the following lean amendments to the methodology are required:

(1) Adopt the applicability conditions to thermal decomposition processes mention thermal decomposition as an option in the applicability section of the methodology and reflect this by deleting the reference to catalytic processes in the title. The proposed title "N_2O destruction in the tail gas of Nitric Acid or Caprolactam Production Plants" is more flexible referring to a multitude of capable technology options;

(2) Include SNCR as a NO_X abatement technology in baseline and project emission calculation. As the methodology explicitly mentions the Selective Catalytic Reduction (SCR) De-NO_X option, the non-selective counterpart SNCR may not easily be accommodated in the current version. By introducing the notion "S(N)CR" to replace the "SCR", the provisions given to account for the project emissions of the De-NO_X units refer to both, the catalytic and non-catalytic process. Consequently the provisions are applicable for both De-NO_X processes as they both rely on ammonia as a reagent. In contrast to the SCR system does, the SNCR system does without the use of hydrocarbons as a reduction agent. Both systems cut the NO_X emissions well below the baseline and maintain the environmental integrity of the N_2O destruction project;

(3) Include emissions from fossil fuel combustion in the thermal destruction process as the thermal decomposition occurs at elevated temperatures in a reaction chamber, additional heat is required from a burner. Emissions related to the combustion of fossil fuels are to be included in the project emissions; the methodology is amended accordingly using the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion";

(4) Adoption of the process flow charts. As the thermal N_2O decomposition process is located downstream of the tail gas turbine, whereas the catalytic high pressure processes are upstream of the tail gas turbine, the process flow charts delimiting the project boundary have to be adopted to reflect both set ups in two distinct figures. These are duplicated in the monitoring section to indicate the monitoring points;

(5) Minor optional editorial changes. Minor typographic changes are proposed.

Recommendation by the Meth Panel:

(a) Please use the space below to provide amendments /changes (in your expert view, if necessary).

The request sounds reasonable. Project participants introduce a new technology to destroy the N_2O in the tail gas.

- The new technology does not affect the nitric acid production, thus baseline emissions calculations remain the same;
- The gas coming out of the abatement follows the current prescription to continually measure the exhaust coming after the abatement unit, therefore project emissions determination are not affected;
- The new technology uses fossil fuels to operate to supplement the heat requirement for the thermal decomposition process and the associated emissions are accounted as project emissions.

The proposal proposes to use natural gas as fuel to provide auxiliary heat requirement to destroy the N_2O in the thermal abatement unit, a more general reference to any fossil fuels may be more appropriate.

Project participants clarified that no separate additional SNCR would be included for NO_X reduction in addition to proposed thermal decomposition technology for N_2O destruction as the new technology produces ideal condition for combined VOC, N_2O and NO_X removal through almost perfect distribution of reagent ensuring emission limit of NO_X emission. Thus the proposed amendment is acceptable excluding item (2) of the request.

(b) Please use the space below for providing guidance, as per Para 93 of EB25 Report, on what type of projects need to revise the PDD as a consequence of the suggested revision, if the recommendation is to revise the methodology.

Please, refer to the box below.

Answer to authors of the request for revision by the Meth Panel :

Please use the space below to provide an answer to the authors of the above query

The Meth Panel recommends to approve an amendment of the methodology with the modifications as mentioned above. The draft amended methodology is annexed to the forty-eighth Meth Panel meeting report.

Signed by the Chair, Mr. Philip Gwage
Date: 11/03/2011

Signed by the Vice-Chair, Lex de Jonge
Date: 11/03/2011

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