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CDM Executive Board



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Our reference/name

Tel. extension/E-mail

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IS-CMS-MUC/Mu Thomas Kleiser +49 89 5791-1186

thomas.kleiser@tuev-sued.de

Response to Request for Review

Dear Sirs

Please find below the response to the request for review formulated for the CDM project with the registration number 0116. In case you have any further inquiries please let us know as we kindly assist you.

Yours sincerely,

Thomas Kleiser

Carbon Management Service



Response to the CDM Executive Board

Request 1

The DOE verified that the cumulative AdOH production in this second crediting year (November 19, 2007 - November 18, 2008) is 88,042 tonnes, which is below a yearly Adipic Acid nameplate capacity of 94 900 t (p.21 Verification Report). However, the validation report defines the installed yearly capacity as 87,308 tons/year. Further clarification is required.

Response by TÜV SÜD:

As stated in the verification report, the methodology specifies that the nameplate capacity for Adipic Acid production of 2004 as per manufacturer's specifications is to be provided once at the time of submission of PDD. The registered PDD "Section A" states a yearly Adipic Acid nameplate capacity of 94 900 t.

The validation report (Report- No. 2005-1031, rev.3 issued by DNV) stated a finding (CL 1 – related to section B 2.1), where it was required to state explicitly the applicability criteria (cap) related to the adipic acid production that exists in 2004 in the PDD.

The PPs response to the finding introduced the availability of the production facility (OI). The availability was considered over a period from the beginning of 2004 up to mid of 2005. The result of this demonstration can only be the real production of Adipic Acid in 2004 taking into account the OI over the whole period.

The production capacity (87308 t) was assessed by DNV and is explicitly stated on page 8 of the validation report ("As verified during the site visit, the **production capacity** for the end of 2004 was established based on the Best Daily Production (BDP) during 3 continuous days times 365 days times Ol%..").

The introduction of OI in combination with the wording "installed capacity" by the PPs created obviously some confusion.

Nevertheless it is evident that the nameplate capacity of a production facility is different from the production capacity during a period.

The final positive conclusion of DNV to the PPs response demonstrates that the provided details serve as plausibility check of the nameplate capacity – especially taking into account that data from 2005 are involved in this assessment.

This is underlined by the positive validation opinion of DNV which explicitly refers to the PDD issued on 12.October 2005, confirming that all requirements of the approved baseline and monitoring methodology AM0021 are applied correctly.

The consideration of the real production of Adipic Acid during a period is not present in the methodology.

The registered PDD is in line with the methodology requesting nameplate capacity which clearly states to be 94 900 t Adipic Acid at the end of 2004.

We hope this could clarify the request.

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Response by PPs:

1/ The methodology

The methodology AM0021 version 1 used by the CDM project 0116 introduced several criteria for the applicability of the methodology, one of them being the "installed capacity" of the adipic acid plant that existed by December 2004, measured in tons of adipic acid per year. The parameter used in monitoring the emissions from the project activity related to this "installed capacity" is the "nameplate capacity" as stated in the Table 2a of the methodology AM0021 version 1 and in the PDD Table D.2.1.1.

2/ Nameplate capacity definition

The Adipic Acid production unit is a complex process with 18 sections and over 100 pieces of equipment (reactors, crystallizers, centrifuges, columns, dryers, intermediate vessels and tanks, compressors and pumps, connecting pipes...) which all contribute to the overall production rate. Furthermore, additions and modifications to the installations have been made over the years. The Paulinia Adipic Acid unit was not package-delivered but built by Rhodia. This explains why the *nameplate capacity* is best defined as the yearly capacity of the unit, determined by the best daily production rate (BDP) multiplied by 365 days/year. The BDP and the resulting nameplate capacity for complex production units can only be determined by a test run where the unit is operated at a stable regime for at least 24 consecutive hours. In the case of the Paulinia adipic acid plant such a test run was done from May 5th to 7th in 2003 for 3 consecutive days at 260 tons per day as the new BDP. This was verified by DNV in the project validation as stated in the validation report. The official nameplate capacity at the end of 2004 was therefore 260 x 365 = 94,900 t/y.

3/ DNV validation report and concept of OI

During the validation audit DNV introduced the concept of equipment availability (OI %) which is neither mentioned in the methodology nor in the PDD. Rhodia answered the question related to the OI% in 2004 and even in the first semester 2005 as the most recent data available at the time of the audit with the idea to cross-check the nameplate capacity (CL1 of the Validation Report).

In its validation report, DNV confirmed the project to be eligible for the application of the methodology and illustrated the actual yearly capacity utilization end of 2004 at 87,308 tons per year as an evidence of the installed capacity which obviously is lower than the *nameplate capacity* due to an OI of less than 100%. This has caused some confusion regarding the answer to the CL1 by Rhodia with respect to the installed capacity, which we would like to clarify below.

4/ OI % definition, not to be applied for nameplate capacity

The concept of OI is used to quantify to what extent the *nameplate capacity* of the plant is being used. It is clear that many factors can affect the rate of utilization of the nameplate capacity. These can be divided into two main categories:

1) External causes for downtime

These include causes which are totally independent from the production unit such as, typically, lack of sales but also delay in delivery of raw materials, defective raw material quality, failure in electricity or utilities, social problems (strikes) etc.

2) Internal causes for downtime

Downtime causes are due to internal process problems such as the failure of an equipment, but also the periodic shutdown needed for the maintenance of equipments, and emergency shut-

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downs due to the automatic interlocks in case of deviation of parameters outside the safe range of operations etc.

Conclusion

It is clear that both external and internal factors can affect the production from one year to another and are totally independent from the nameplate capacity. So the utilization rate of the unit can vary from year to year but the *nameplate capacity* remains unchanged as long as it is not modified by a major equipment modification related to a debottlenecking investment project. The use of the *nameplate capacity* as the criteria to cap the yearly adipic acid production eligible in the base line calculation is consistent with the following:

- The methodology AM0021 v1 that does not require to apply the OI%
- The PDD validated by DNV, (dated October 12th, 2005, version 4) which is the reference for the monitoring of the project and where the *nameplate capacity* is clearly defined as being 94,900 tons per year (§ A.4.3) and quoted in the Emission Reduction calculations in the PDD (Table A.4.4.1).