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## CDM Executive Board



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## 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,

Javier Castro  
Carbon Management Service

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## **Response to the CDM Executive Board**

### **Request 1**

#### **Issue:**

The DOE/PP are requested to clarify how the difference in the measured weights before and after the calibration of the scale, which is used for measuring adipic acid slurry, was taken into account while calculating the baseline emissions, since such a difference in the amount of adipic acid production used may result in overestimation of emission reductions.

### **Request 2 and 3**

#### **Issue:**

The DOE/PP are requested to clarify how the difference in the measured weights before and after the calibration of the scale, which is used for measuring adipic acid slurry, was taken into account while calculating the baseline emissions.

### **Response by TÜV SÜD:**

#### **1. Calibration of scales and validity of calibration certificates**

In the judgement of the verifier the calibrations of both scales were performed in accordance with the PDD since the calibration is mentioned to be performed twice a year in the ISO quality system of the plant. Furthermore as per the requirements of the related Brazilian national standard MICT 236/94, which is published by the public organization responsible by metrology in Brazil (INMETRO), the calibrations of this commercial weight scale must only be performed annually. In order to comply with the ISO quality system the calibrations were distributed evenly over the year. Valid certificates regarding calibration of the scales according to standard MICT 236/94 have been provided for both scales.

#### **2. Deviations of scales and consistency with monitoring plan and baseline and monitoring methodology**

It was confirmed by the third party that the deviations of the scales were within the required limits of the norm MICT 236/94, which allows a deviation of up to 30 kg, so that no adjustment had to be performed in order to comply with the given limits. Nevertheless the third party adjusted the weigh scales as a part of the provided service. TÜV SÜD could also confirm that the relative deviation (0.08%) before and after this adjustment was inside the range of the uncertainty of the adipic acid slurry quantity measurement defined during the Initial Verification of the project (0.24%) and that the reported emission reductions could satisfy the materiality threshold defined in the Validation and Verification Manual Draft (Annex 1 EB39 proposed agenda). Additionally the monitoring has been done in accordance



with the Monitoring Plan and baseline and monitoring methodology AM 0021, v. 1, valid for this project.

### 3. Treatment of deviation in calculation of baseline emissions

Despite the clear fact that the calibration certificates of the scales were found to be correct and that there is no deviation from the registered monitoring plan, the baseline and monitoring methodology valid for the project, the verifier had decided in CAR#2 to crosscheck the calculation of the emission factor taking into account the determined values found by the third party before and after the performed adjustment. This was done in order to ensure that even in this extreme consideration the manually calculated value falls not below the cap of 0.27t N<sub>2</sub>O/tAdOH.

The documented figures were summed up as a very conservative assumption and then added to the adipic acid production stated in the workbook. The impact on the production of adipic acid was – as stated by the project participant and manually recalculated by the verifier – less than 0.1%.

This cross check together with the explanations given in point 1 and 2 above confirms the statement of the verifier that no action should be taken regarding this deviation.

### **Response by Rhodia**

The verification of the truck scales was performed by Toledo do Brasil Indústria de Balanças Ltda which is an independent and accredited company [1]. The difference between the standard and measured weights in the calibration (10 kg on scale BB-0335 and 20 kg on scale BB-0090) was found to be within the acceptable tolerance specified for this type of equipment. According to the pertinent legislation and the Rhodia ISO 9001 certified Quality System it was not necessary to correct the weight of trucks nor to inform any customer or supplier about the differences found.

In addition to that, CDM methodology AM0021-revision 1 which is used by CDM project 0116, does not require to deduct any uncertainty in the baseline emissions calculation. So as long as the instrument is within its accepted tolerance, there is no need to take an action and the value indicated is taken as such.

For those reasons no action was required concerning the data used to fill out the Workbook and to calculate the emissions reduction. Therefore the adipic acid production was used without any change.

### **Annex: Detailed Explanation**

In Brazil, Truck weigh scales used for commercial transactions are subject to the rules and standards established by government body INMETRO, currently subordinated to the Ministry of Development, Industry and Commerce, in the “Portaria INMETRO”, called here “Norm 236/94”, identified by number 236 of December 22<sup>nd</sup>, 1994 [2]. That document, which takes into consideration the recommendation R 76-1 (92) of the International Organization for Legal Metrology, of which Brazil is a member country, aims at achieving better consumer protection and fraud prevention.

In the project site Paulínia the truck scales BB-0090 (on the entrance lane) and BB-0335 (on the exit lane) are used for weighing all trucks carrying raw materials and products that enter and leave the site respectively. Rhodia is using them for all customers invoicing and also for checking all raw materials invoices from its suppliers. If the deviation found on a scale is higher than the tolerances given by the Norm 236/94 then the deviation has to be corrected immediately.

Although the Norm 236/94 only requires verification of this type of truck scales once a year, Rhodia has established a higher standard in its ISO 9000 certified Quality System by stating that they are to be verified twice a year. A maintenance order for calibration was timely issued in the month of June 2008. Truck scales calibration is a complex operation which needs scheduling with external service providers, heavy equipment handling and requires also to stop one of the lanes (entrance or exit) for several hours which causes some difficulties to the entire site. The constraints encountered this time caused the calibration to be performed in August, 2008 instead of June, 2008.

Weight scales BB-0090 and BB-0335 specifications:

Manufacturer:	Toledo do Brasil Indústria de Balanças Ltda
Type:	8540
Class:	III
Serial numbers:	06129001089-GH (BB-0090)/06129001137-HH (BB 0335)
Maximum load	80000 kg
Scale division	10 kg (smallest weight increment)

The verification and calibration of scales BB-0090 and BB-0335 was performed by Toledo do Brasil Indústria de Balanças Ltda which is an independent and accredited company, following the applicable Norm 236/94, according to the attached certificates [3] and [4]. The maximum deviations found in the calibration were +10 kg for scale BB-0335 and +20 kg for scale BB-0090. The smallest scale division is 10kg.

The Norm 236/94 specifies the maximum deviation ("permitted maximum error in service") that doesn't require any adjustment of the weigh scale. The following table summarizes the results for the weigh scales BB-0090 and BB-0335, detailed in document cited on reference [5]:

Load expressed in kg	Permitted maximum error expressed in kg
$0 \leq m \leq 5\,000$	+/- 10
$5\,000 < m \leq 20\,000$	+/- 20
$20\,000 < m \leq 80\,000$	+/- 30

The Norm 236/94 is very strict as for instance an error of 30 kg for a load of 25 000 kg represents 0.12% uncertainty.

The following tables show that the error between read load value and standard load value measured by Toledo were within the permitted errors.

### Entrance lane weight scale (BB0090)

Standard load value used on calibration (kg)	Read load value on calibration (kg)	Error between read load value and standard load value		Permitted maximum error in service (MICT 236/94) (kg)
		(%)	(kg)	
0	0	0	0	0
200	200	0	0	+/- 10
5 000	5 000	0	0	+/- 10
11 000	11 020	0.18	20	+/- 20
20 000	20 020	0.10	20	+/- 20
22 000	22 020	0.09	20	+/- 30
20 000	20 000	0	0	+/- 20
11 000	11 020	0.18	20	+/- 20
5 000	5 000	0	0	+/- 10
200	200	0	0	+/- 10
0	0	0	0	0

### Exit lane weight scale (BB0335)

Standard load value used on calibration (kg)	Read load value on calibration (kg)	Error between read load value and standard load value		Permitted maximum error in service (MICT 236/94) (kg)
		(%)	(kg)	
0	0	0	0	0
200	200	0	0	+/- 10
5 000	5 000	0	0	+/- 10
11 000	11 010	0.091	10	+/- 20
20 000	20 010	0.050	10	+/- 20
22 000	22 010	0.046	10	+/- 30
20 000	20 010	0.050	10	+/- 20
11 000	11 010	0.091	10	+/- 20
5 000	5 000	0	0	+/- 10
200	200	0	0	+/- 10
0	0	0	0	0

Therefore, no action was required in terms of correcting the weight of trucks or informing customers and suppliers with whom Rhodia has made transactions using those scales.

Although no correction was required, according to the Norm 236/94, Toledo has made the adjustment to eliminate the small deviations found. This is the usual procedure adopted by all companies accredited for doing truck scales calibration in order to prevent potential increasing deviations between two calibrations and possible errors above the values permitted by the Norm 236/94.

During the implementation of the project, the uncertainty of the adipic acid slurry quantity has been calculated to be 0.24% as reported in the Workbook The uncertainty calculation was



presented to the DOE during the initial verification. It can be crosschecked that the weight scale deviations are also inside the adipic acid slurry uncertainty calculation.

In order to highlight the nearly negligible impact of the truck scale uncertainty on the emission reduction a simulation was performed by subtracting 30 kg of the weight of each truckload over monitoring period 15 (having in mind that such figure is the maximum error allowed by the Norm 236/94). The simulation has shown that the baseline emissions (thus the emissions reduction) would be reduced in 349 t CO<sub>2</sub>e (only 0.043% of the emissions reduction on period 15). A similar simulation was performed and demonstrated that the N<sub>2</sub>O emission factor remains far above the cap established by the methodology AM0021-revision 1 so the capped value can be used as such (0.27 t N<sub>2</sub>O / t adipic acid).

As the baseline and monitoring methodology AM0021-revision 1 which is used by CDM project 0116, does not require deducting any uncertainty in the baseline emissions calculation. So as long as the instrument is within its accepted tolerance, there is no need to take an action and the value indicated is taken as such. Thus the adipic acid production considered in the emissions reduction calculation of period 15 was maintained without any change.

## REFERENCES

- [1] Accreditation Certificate issued by INMETRO to Toledo do Brasil Indústria de Balanças Ltda. (1\_Accreditation Certificate.pdf)
- [2] Norm 236/94 issued by INMETRO (2\_Norm236\_94.pdf)  
source: <http://www.inmetro.gov.br/legislacao/rtac/pdf/RTAC000180.pdf>
- [3] Conformity Certificate of BB0090 Entrance Lane Truck Scale  
(3\_Conformity\_Certificate\_BB0090\_Truck\_Scale.pdf)
- [4] Conformity Certificate of BB0335 Entrance Lane Truck Scale  
(4\_Conformity\_Certificate\_BB0335\_Truck\_Scale.pdf)
- [5] Truck weigh scale Calibration Data  
(5\_Truck\_weigh\_scale\_Calibration\_Data.doc)