

Mr. Jean-Jacques Becker, Chair  
CDM Methodology Panel  
c/o CDM Secretariate  
UN Framework Convention on Climate Change  
*sent by email*

5 July 2004

Dear Mr. Becker

## **Response to DuPont letter to CDM Methodology Panel concerning AM0001**

Having now received a copy of the DuPont letter, dated 3 June 2004, we feel it is important to address the points raised in this letter.

The key thrust of the letter is that DuPont have achieved a HFC 23 emission rate of 1.37% on their worldscale HCFC 22 plant at Louisville Works in the USA and therefore this should set the baseline for HFC 23 emission reduction projects in the developing world using AM0001.

As you will be aware, the basis of the existing AM0001 methodology should not be overlooked, which is written using the selected approach from paragraph 48 of the CDM modalities and procedures "Existing actual or historical emissions, as applicable". This means the historical emissions from the plant where a CDM project is undertaken is directly applicable to the setting of the baseline. However in addition, IPCC default values are also relevant.

In assessing the relevance of the 1.37% emission rate, it is important to recognise that in the early 1990s DuPont publicly committed to reduce its GHG emissions by 40% by the year 2000 and 65% by 2010 using 1990 emissions as a baseline. Since then, they have undertaken projects to reduce HFC 23 emissions, driven by this corporate commitment to reduce GHG emissions. As far as we are aware, corporate targets to reduce HFC 23 emissions have not been in place in developing countries.

The DuPont worldscale HCFC 22 plant at Louisville Works is one of the largest HCFC 22 plants in the world with a published capacity in 1997 of 75,000 tonnes. The plant was cited as making HFC 23 as a co-product<sup>1</sup>, which suggests that the plant is configured to allow for the collection of HFC 23, as it used as a fire extinguishant and in semi-conductor manufacture.

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<sup>1</sup> Chemical Economics Handbook, *Fluorocarbons*, section 543.7001 V, Stanford Research International, Menlo Park, CA, U.S.A., 1998.

The available data suggests that the other HCFC 22 plants in the USA, which are smaller than the DuPont plant, have not achieved such low production rates for HFC 23, even though they operate in the same cost competitive market. In 2002 the overall emission rate for the USA HCFC 22 plants was reported as 1.17%<sup>2</sup>. This overall emission rate includes the DuPont plant, where emission rates must be very low as they capture and incinerate the HFC 23. Therefore, the other plants must operate at emission rates of 2% and above to account for the reported overall emission rate.

Projects that are cost effective for worldscale HCFC 22 plants that can already separate HFC 23 may not be cost effective or even applicable for small plants with very different configurations. For example, CFC 11/CFC12/HCFC 22 swing plants in the developing world making between 5000 and 20,000 tonnes of product have in the past concentrated on CFC production. It is only in last few years that HCFC 22 production has started to increase significantly in the developing world.

The optimisation of production of HCFC 22 is complex as operating to minimise HFC 23 production can require lower HCFC 22 production rates, which limits output. Any efficiency gains can be more than offset by output reductions. In addition, the catalysts used mean that the process has to be very carefully controlled to ensure that severe corrosive conditions are avoided. Changes to plant conditions can result in unintended effects with the potential risk of loss of plant containment.

As you will be aware, the IPCC has considered emissions of HFC 23 from HCFC 22 production and provides good practice guidance on emission rate measurements and reporting for National Inventories<sup>3</sup>. This document states when considering choice of emission factors:

*'In cases where plant-specific measurements or sampling are not available and Tier 1 methods are used, the default emission factor of 4% (tonnes of HFC-23 produced per tonne of HCFC-22 manufactured) presented in the IPCC Guidelines should be used, assuming no abatement methods.'*

However the IPCC background paper<sup>4</sup> comments that:

*'Some plants have implemented process changes in recent years, and a range of 1.5 to 3 percent (typically of the order of 2 percent) is probably more representative of current operations. However, plants that do not have actual measurements are unlikely to have optimized their process with respect to the generation of HCFC-23. Consequently, an emission factor closer to 3 to 4 percent might be more accurate'*

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<sup>2</sup> Inventory of U.S. Greenhouse Gases Emissions and Sinks: 1990-2002, U.S. environmental Protection Agency. Reported HCFC 22 production in 2002, 144.2 ktes, with reported HFC 23 emissions of 1692 tes (or 19.8 Million tes CO<sub>2</sub>e).

<sup>3</sup> IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories May 2000

<sup>4</sup> 'HFC 23 Emissions from HCFC 22 Production : Background Paper for the IPCC Workshop on Good Practices in Inventory Preparation : Industrial Processes and the New Gases' by M Branscome RTI and W N Irving USEPA (12 March 1999).

To date, the baseline emission rates reported for CDM projects using AM0001 are within the 1.5 to 3% range, which is representative of current operations. Emission rates for these plants might have been expected to be even higher from the IPCC background paper.

You will be aware that AM0001 also states that in the absence of historical data or for a new plant the lowest IPCC default value shall be used.

In conclusion, information relating to one of the largest HCFC 22 production facilities in the developed world, may not be applicable to HCFC 22 production in the developing world particularly for smaller facilities that may also be swing plants. AM0001 Methodology takes into account historical data, and IPCC default values, recognises that there are a range of HCFC 22 plant configurations and capabilities, and that in developing countries there are no significant drivers or internal company targets to improve HFC 23 emission rates, particularly for lower tonnage plants.

Without CDM, improvements in HFC 23 emissions rates would not occur and companies would operate their plants to maximise HCFC 22 production irrespective of HFC 23 emission rates. Furthermore, in the developed world, where competitiveness is intense and emission reductions necessary, plants are still operating in the 2-3% HFC 23 production range.

Yours sincerely

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