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**Statement to Hidden Harm, a report prepared by Mark Worth and Peter Jenkins,  
Public Citizen and The Center for Food Safety, Washington, D.C., December 2001**

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Since some of the claims in the report are based on our research at the FRCN and my correspondence with Peter Jenkins, I want to distance myself from the conclusions which the authors have reached. I wrote to Peter Jenkins (letter of 22.01.01) before the publication of Hidden Harm:

“... that the results cannot be overstressed. We have used just one single procedure, we have observed DNA strandbreaks, but whether these DNA strandbreaks have any significance.....this is not known. Our conclusions are that at high concentrations of 2-dodecylcyclobutanone DNA strandbreaks are observed employing the comet assay both in *in vitro* and *in vivo* experiments. The tested concentrations are very high compared with actual human intake.

In fact, many substances present in normal food will be able to induce DNA strandbreaks at elevated concentrations. Since we like to know whether in case of cyclobutanones these DNA strandbreaks have any significance, we concluded that further experiments are required.

We mention in our papers that an anticipated risk must be very low, since many studies of irradiated food – thereby containing 2-alkylcyclobutanones – fed to animals or consumed by humans have shown no adverse effects attributable to the irradiation treatment.

It should also be noted that the applied DNA comet assay at present is not embraced for regulatory purposes, and that more information about the results of this technique are deemed necessary before the assay can be critically evaluated for its utility in genetic toxicology. Thus, a large database with results from both *in vitro* and *in vivo* testing is needed, combined with the results of appropriately designed multilaboratory international validation studies (Tice et al.(2000) *Environ. Mol. Mutagen.* **35**, 206-221).

Due to all these limitations we stress that further experiments are necessary to elucidate whether the effects we have found have any relevancy for the actual human exposure to cyclobutanones. At present, it would be premature to draw the conclusion that cyclobutanones are a health hazard. Although we know that a possible risk will be very low, we nevertheless are interested to quantify this risk – albeit minimal or not measurable at all.“

Unfortunately, the authors Worth and Jenkins did not take my precautions into account but made a story about the „dangerous“ cyclobutanones. In my opinion they greatly exaggerate the risks of 2-alkylcyclobutanones (2-ACB), which we still do not know very much about.

In addition, their report contains a number of incorrect statements:

On page 5 it is stated incorrectly that 2-ACB „have never been found in any other substance“. In their ref. 3, in fact one of my papers, which was translated from German into English by Public Citizen, it can be read: „Although 2-methylcyclobutanone has been identified following ultrasound treatment of *Hevea brasiliensis* latex, for example (Nishimura et al., 1977), cyclobutanones have not yet been detected in non-irradiated foods....“. Clearly it is stated here that 2-ACB are found elsewhere.

On page 8 it is claimed that researchers from Berlin have been able to find 2-dodecylcyclobutanone in irradiated egg white. It is true that they looked for it, but since the amount of fat in egg white is very low, they have not been able to find it – as they did in irradiated whole egg and egg yolk. A thorough look at their paper (ref.14) makes this quite clear.

Please note (box on page 9) that stearic acid is C18:0, and not C18:1 as stated.

FRCN's second experiment (page 10) was certainly published, but just as a report, not in a peer-reviewed journal. When Worth and Jenkins specify that „chromosome breakage was detected in the colon cells of rats“, they suggest that some study on chromosome breakage was performed. This was not the case. The study measured DNA single strandbreaks using the Comet Assay and did not evaluate chromosome aberrations.

On page 10 (ref.26) the authors mix two sentences together, which were mentioned in my letter to Peter Jenkins above. The second sentence was a direct quotation from the Tice paper concerning the comet assay (please read it there). Now Peter Jenkins combines this Tice sentence with one of mine concerning 2-ACB, evoking the impression that the Tice sentence is valid for the 2-ACB, and that I made this statement. This is not an acceptable way of handling sentences. If you just slice them and fix them together the way you want, thereby changing the sense, the result is non-sense.

In conclusion, I am unhappy with the unscientific handling of our results, in my opinion the authors unnecessarily stir up emotions and thus do a disservice to public trust. I hope we can continue our research without too much disturbance in order to reach conclusions based on scientific evidence.

Karlsruhe, 08.02.02

Henry Delincée

08.02.2002

Dear Paisan

We read with interest the comments forwarded by Mr. Peter Jenkins, also concerning our recent studies on the potential toxic effects of 2-alkylcyclobutanones. In fact, we share the opinion of Mr. Jenkins with regard to his statement that our results raised many more questions than they answered. That's also what we have written in our summary, that more experiments are necessary to elucidate the relevance of our findings to the human exposure situation. However, we cannot agree with Mr. Jenkins that our results provide clearly-proven risks for the consumption of irradiated food. We also do not agree with his statement that the radiation technology "proliferates unchecked", since a great body of knowledge including numerous animal feeding studies is available. Regarding our studies with 2-alkylcyclobutanones we hope we can continue our research without too much disturbance in order to reach a conclusion based on scientific evidence.

Best regards

Henry and Eric

P.S. Henry has added a comment on "Hidden Harm" for your consideration.