# 9.8.1 Canned Fruits and Vegetables

## Comments to August 1995 section

Note: This material is related to a section in *AP42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the file number, the AP42 chapter and then the section. The file name "rel01_c01s02.pdf" would mean the file relates to AP42 chapter 1 section 2. The document may be out of date and related to a previous version of the section. The document has been saved for archival and historical purposes. The primary source should always be checked. If current related information is available, it will be posted on the AP42 webpage with the current version of the section.

**NATIONAL FOOD PROCESSORS ASSOCIATION**

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Washington, D.C. 20005
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December 22, 1994

Mr. Dallas W. Safriet
Environmental Engineer
United States Environmental Protection Agency
Emission Inventory Branch (MD-14)
Research Triangle Park, North Carolina 27711

RE: Draft Emission Factor Documentation for AP-42, Section 9.8.1: Canned Fruits and Vegetables.

Dear Mr. Safriet:

We thank you for the opportunity to comment on the draft report on canned fruits and vegetables for AP-42. We greatly appreciate the time you have provided for us to seek input from as many potentially affected interests as possible and to identify possible data that would be relevant in reviewing the draft report.

We have confirmed the finding in the report that data on the emissions from fruit and vegetable canning operations is at best extremely limited. However, some literature is available and a growing number of canning facilities are working with their designated state agencies on air issues. Based on this information, we believe that, in general, potentially regulated emissions, particularly volatile organic compound (VOC) emissions, are insignificant. Particulate matter (PM) is also more likely to be associated with handling of dry material as opposed to the high moisture processes which comprise the canning operation. A number of companies have indicated that their handling operations for dry ingredients have emission control devices in place.

Following are more specific comments and references to information we have identified.

*Industry Characterization*

On page 2-2 the statement is made that most canning plants are multiple-product plants. It would be more accurate to indicate that the industry is made up of multi-product plants and single product plants. There are a number of facilities that are single commodity and seasonally operated. Multi-product plants may also operate only part of the year.



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Process Description

Although the process description includes the basic steps of most canning operations, we believe some indication that there is diversity among facilities should be noted. Over forty different canning operations were addressed in the development of waste water effluent standards in the late 1970's. How cooking or blanching is performed varies. Differences are introduced by a number of factors including the commodity being processed, whether steam or hot water are used in the "cooking" or "blanching" process, and the technology used in the cooking process, such as screw steamers or tube/pipe blanchers.

A point that may be an important factor with respect to potential emissions is that the cooking technologies in canning processes are very high moisture processes. Emissions from cooking processes will be predominantly water. In this regard, we did not identify any process that used live steam, ie. cooking processes do not use pressurized steam and venting of steam under pressure.

With respect to juice processing facilities, it should be stated that some facilities prepare juices from concentrates and that raw commodity processing may not occur. Again, the point is to indicate that there is diversity in the industry and that a "one size fits all" view of even a subset of the industry could be misleading.

The description of tomato processing on page 2-7 indicates lye peeling is the predominant method used. We, however, believe steam peeling is used as much if not more than lye peeling.

While we understand that the process description is not intended to be exhaustive, we do strongly suggest the diversity in plants and processes should be explicitly addressed. Readers should not be left with the impression that facilities are sufficiently similar for application of a single approach for dealing with what we believe to be limited potential emissions.

Emissions

As indicated above, we found data on potential emissions to be limited. When PM emissions have been an issue, the approach used by regulatory agencies appears to be that of specifying a control technology rather than developing concentration based standards. Also, we found no instance where PM emissions were a matter of concern for the high moisture processes of fruit and vegetable cooking.

The description of potential VOC emissions on page 2-10 may be very misleading. First, only two products are described which fails to represent the variety of commodities processed. Second,

by reporting percentages of volatile constituents, the reader may interpret the information to suggest greater quantities of potential VOC's are emitted than is actually the case. Also, it is not clear what the percentages represent. Are they percent of the volatile gases or percent of total "emissions"? The fact that the limited information available is qualitative in nature should be indicated in the AP-42 text.

We are aware of at least one effort to actually measure emissions from a "canning operation". The study found that VOC emissions were insignificant. We will provide you with information from this study when the report becomes available.

Attached for your information are two articles describing volatiles from tomatoes and tomato paste. We do not expect that all the compounds identified meet the definition of a VOC under the Clean Air Act. Even if the definition of VOC's were satisfied and emissions to the atmosphere occurred, the concentration levels would be in the ppm or ppb range. At least with respect to tomatoes, we would expect the VOC content of air emissions to be insignificant.

We suggest that the likely trace levels of VOC's in canning operations and the high moisture content of canning air emissions should be considered in identifying possible control technologies. The suggested control technologies, particularly afterburners, are not appropriate for low VOC or HAP concentration, high moisture emissions.

The background discussion and the draft AP-42 section suggest ancillary operations such as gluing may be a source of VOC or HAP emissions. We believe these operations are insignificant emission sources. In a California air district, facilities were evaluated for emissions from ink jet printing operations. The insignificant emission level used by the air district is 2 lbs/day/source. The food processing facilities evaluated were well under the insignificant level. Similar experiences in other states were identified in that potential emissions were determined not to be significant.

Emission Control Technology

As indicated above, we do not believe the suggestion that incineration based technology for VOC control may be practical for canning processes. This is because of the low levels of VOC's likely to be emitted and the high moisture content of air emissions associated with canning operations.

An best available control technology assessment for the use of thermal and catalytic incineration for control of emissions from selected printing operations from can manufacturing was conducted in California. The assessment found that the cost of this

specific application of incineration technology was $7,000/ton of regulated pollutant removed. Assuming a much lower level of potential VOC or HAP emissions from canning operations, incineration would not satisfy reasonable economic thresholds for a canning process application.

Again, we thank you for giving us the opportunity to review the draft AP-42 section. With the information we can identify, we believe the draft may overstate the potential for emissions from canning operations and suggest control technologies that are not technically or financially appropriate. If more information becomes available we will certainly share it with you. We look forward to working with you on this and other efforts focused on the food industry.

We feel it would be mutually worthwhile for us to meet with you and other appropriate Agency personnel to get a feel for the food industry issues you consider a priority. I will contact you in the near future to explore the merits of meeting. If you have any questions or if we can be of assistance, please call.

Regards,

Rick

Richard N. Jarman
Director Technical Regulatory Affairs

CONTACT REPORT--MRI Project No. 4601-08

From: Tom Lapp, Environmental Engineering Department

Date of Contact: July 21, 1994

Contacted by: Telephone

Company/Agency: State of New Jersey, Dept. of Environmental Protection, Division of Environmental Quality

Telephone Number: (609) 530-4042

Person(s) Contacted/Title(s)

Mr. Micheal Klein, Supervisor, Bureau of Technical Services

CONTACT SUMMARY:

MRI called the Emission Testing Branch in the New Jersey DEP (609) 292-6710 but was told to contact the Technical Services Department for information on existing test reports for individual companies. Mr. Klein was our contact person.

There are no emission test reports or test data for emissions from the canning process for fruits or vegetables. There are some data for emissions from the can coating process but no other processes.

Mr. Klein was questioned on the availability of test reports for all of the other Food and Agricultural sections. He stated that there are several meat rendering plants in New Jersey that have odor problems but no emission testing has been performed. There may be some data on breweries but was not sure.

Mr. Klein stated that the New Jersey files are arranged by company, by location and plant identification number. In order to get easy access to their system, they would have to know the specific location of the plant and the ID number. There are no cross reference files for company/industry/product.

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Original Sent To Tom Lapp on 12-28-94

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The Articles did not make copies



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