

AP42 Section:	9.13.2
Title:	Comments and letters
<p>Note: This material is related to a section in <i>AP42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources</i>. AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/</p> <p>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 The document may be out of date and related to a previous version of the section.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.</p>	

CONTACT REPORT--MRI Project No.

From: Brian Shrager, Environmental Engineering
Department

Date of Contact: December 13, 17, and 20, 1994

Contacted by: Telephone

Company/Agency: Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109

Telephone Number: (415) 771-6000

Person(s) Contacted/Title(s)

Dennis Jang, Air Quality Engineer

CONTACT SUMMARY:

Mr. Jang was contacted to determine the process configuration of the "green bean handling system" at the Hills Brothers Coffee Company, San Francisco, coffee roasting facility. He was not familiar with the system, and the available information on the facility did not contain any details about the system. However, he stated that other facilities green bean handling systems included pneumatic conveyors, transfer points, and storage hoppers.

Mr. Jang was also asked about the control system on the coffee cooler at the Nestle, Union City, facility. He stated that a cyclone controls PM emissions from the cooler, and any compliance tests that were performed were conducted at a location following the cyclone.

CONTACT REPORT--MRI Project No. 4602-03-03

From: Brian Shrager, Environmental Engineering
Department

Date of Contact: December 20, 1994

Contacted by: Telephone

Company/Agency: Tetley's Corporation

21 Grand Ave
Palisades Park, NJ 07650
Telephone Number: (201) 943-0600

Person(s) Contacted/Title(s)

Michael Wood, Director of Engineering

CONTACT SUMMARY: Mr. Wood was contacted to clarify several issues regarding coffee processing operations. The following issues were discussed:

- Green bean handling operations--both belt conveyor systems and pneumatic systems are used to handle green coffee beans.
- Most facilities use indirect-fired roasters, although some small facilities may still use direct-fired roasters. Direct-fired roasters contact the beans with the flame, while indirect-fired roasters typically heat the beans by convection, although conduction heating is also used.
- Control systems used on roasters include afterburners, fabric filters, and exhaust gas systems that recirculate the roaster exhaust through the roaster burner flame and then into a chamber containing a catalytic element. Referred to as a thermal catalytic oxidizer, but is actually just control with a catalyst.
- The following companies manufacture roasters and would be useful to contact for specifics on roasters: Probat (Germany), Scolari (Milan, Italy), Neo-tech (Germany), Burns (U.S.--may be a division of Blaw-Knox?), Lilla (Brazil), and Vitoria (Italy).
- General process flow--bags of green coffee beans are hand- or machine-opened, screened to remove debris, weighed, transferred to storage hoppers by belt or pneumatic conveyor, roasted, quenched (part of roasting--end of roast cycle, halts roasting), cooled, destoned (airveyors that lift the beans [roasting changes the bean density so that separation from stones and metal is easily achieved]), equilibration--beans

stabilize and dry before grinding, grinding, packaging, and shipping.

- Decaffeination--methylene chloride is no longer used in the U. S., although it is still used elsewhere and is believed to produce the highest quality decaffeinated beans. Decaffeinated green beans can be purchased in bulk, decaffeinated, at a central decaffeination plant, or decaffeinated prior to roasting at a roasting facility. Extraction performed with water, solvents, and supercritical CO₂. Following extraction, steam drying or hot air drying.
- Several valuable references that may be available were discussed, including:

Coffee Technology, Sivetz and Desrosier, AVI Publications, 1979, out of print.

2 volume 1986 publication from Germany, Bernhard Rothfos, Coffee Production

National Coffee Association of U. S. A., Inc.

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February 14, 1995

Mr. Dallas W. Safriet, Environmental Engineer
U.S. ENVIRONMENTAL PROTECTION AGENCY
Emission Factor Inventory Group (MD-14)
Research Triangle Park, NC 27711

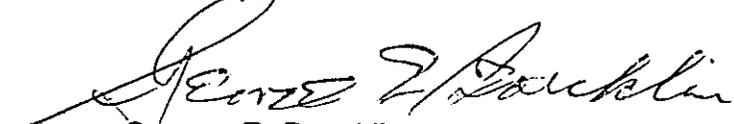
Dear Mr. Safriet:

This is to confirm our telephone conversation of today, February 14, 1995, in which I requested an extension of time to comment on Section 9.13.2 of AP-42 on Coffee Roasting. I explained that while considerable discussion had been devoted to the document enclosed with your letter of December 29, 1994, our Environmental Committee had not completed its response. Also, the committee was not able to determine whether additional source test data could be supplied for you.

The extension requested was until March 31, 1995 and you agreed to that date. You also suggested that if new source test data could be supplied earlier it would be very helpful to you. We will try to comply with your request.

We thank you for your understanding and we think that our response on or before March 31, 1995 will help you to produce an improved document.

Sincerely,


George E. Boecklin

GEB/mc

cc:
Environmental Committee
Geleen Briscoe

CONTACT REPORT--MRI Project No. 4602-03-03

From: Brian Shrager, Environmental Engineering
Department

Date of Contact: July 13, 1995

Contacted by: Telephone

Company/Agency: Nestle Research and Development

Telephone Number: (513) 642-7015

Person(s) Contacted/Title(s)

Dave Webber

CONTACT SUMMARY: Mr. Weber was contacted to clarify the operation of indirect- and direct-fired coffee roasters.

- Indirect-fired roasters in the coffee industry are actually direct-fired roasters, meaning that the combustion gases from the burner directly contact the coffee beans. However, the burner flame does not contact the beans. Direct-fired roasters contact the beans with the flame. New roasters are all "indirect-fired", and achieve a more uniform roast than the 20- to 30- year old direct-fired roasters.
- Probat, a large roaster manufacturer, is apparently developing an indirect-fired roaster which is really indirect-fired (no contact between combustion gases and coffee beans). However, these roasters are not in use currently.

Rec'd 5/24/95
TL

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THOMAS D. WESTFELDT
Westfeldt Bros., Inc.

Dear Mr. Safriet:

As a follow-up to the NCA's comments of March 31, 1995 regarding the Draft Report-Emission Factor Document for AP-42 on Coffee Roasting, I enclose the following materials pertaining to the decaffeination process:

- An excerpt on coffee from *Volume 6* of the **Encyclopedia of Chemical Technology**.
- An excerpt from *Volume 2: Technology of COFFEE* by R.J. Clarke and R. Macrae.
- An excerpt from *Volume 6: Commercial and Technico-Legal Aspects of COFFEE* by R.J. Clarke and R. Macrae.

I will advise you shortly regarding the availability of new point source data.

Sincerely,


George E. Boecklin

GEB/mc

Original
- to
HRT
ON 4-3-2-

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March 31, 1995

Mr. Dallas W. Safriet, Environmental Engineer
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Dear Mr. Safriet:

The National Coffee Association of U.S.A., Inc. appreciates the opportunity to comment on the Draft Report-Emission Factor Document for AP-42 on Coffee Roasting.

1. Reference #'s 3 and 6 are source test results on pilot plant roasters at a facility Kraft Foods (Maxwell House) operated at that time. Although the report recognizes that reference #6 should not be rated for developing emission factors, it does rate #3. Given the maximum throughput at 200 lbs/hr. for reference #3 as indicated in the source test report, this is a pilot plant unit, and as such, should not be rated either.
2. Reference #'s 8 and 9 are source tests on the same roaster, which is a batch roaster, not a continuous one. The appendices are correct; pp. 4-4 and 4-5 (Section 4 - Review of Specific data Sets, reference #'s 8,9) should be corrected to reflect the appendices.
3. Page 9.13.2-1 Last Paragraph: The discussion about the decaffeination process methodologies is not at all accurate for the U.S. market. Methylene chloride is no longer used for decaffeination by either direct or indirect methods. The reference to its use should be deleted. The description of methodologies employed should be structured narratively as a tiered approach to the actual methods which are used most predominantly. We will provide you with more up-to-date information on the processes currently in use.
4. Page 9.13.2-3 Third Paragraph: The statement regarding the potential of VOC emissions from decaffeination and instant coffee extraction and drying is speculative. Although this is likely true, emissions are most likely insignificant in comparison to Roasting. The unfounded statement does not add value to the report.

(continued)

5. A clear reference to the limitations inherent with the use of these emission factors should be included as a footnote to the tables. In fact, pp. 3-4 and 3-5 (Sec. 3.3 - Emission Factor Rating System) state that there would be a notation in the emission factor tables about the limitations of the use of the factors; however, there is no notation in either the tables or in the proposed text (pp. 9.13.2-1 through 9.13.2-6). For Example: The emission factor rating for this table is "D" and for reference 13 is "E". The definitions of the emission factor ratings are not included in the body of the actual DRAFT AP-42 Section 9.13.2. These are defined in Section 3 of the overall report as follows:

D - Below Average: The emission factor was developed only from A- and B-rated test data from a small number of facilities, and there is reason to suspect that these facilities do not represent a random sample of the industry. There also may be evidence of variability within the source category population. Limitations on the use of the emission factor are noted in the emission factor table.

E -Poor: The emission factor was developed from C- and D-rated test data, and there is reason to suspect that the facilities tested do not represent a random sample of the industry. There also may be evidence of variability within the source category population. Limitations on the use of these factors are footnoted.

It is critical that this information regarding the limitations of the data be available to prospective users of this AP-42 section in the future. The variability of data is evident in many areas. One specific example is the following variations in the TOC emissions from continuous roasters without controls.

The reported values in the References were as follows:

Reference 5	0.212 lb/ton
Reference 6	0.547 lb/ton
Reference 8	3.40 lb/ton (THC)
Reference 12	2.42 lb/ton

There are obviously order-of-magnitude differences which are not justified in any of the discussion. The documentation, furthermore, does not address direct and indirect fired roasters or batch vs. continuous roasters. This may well be some of the cause for variation. As indicated in our #2, Reference 8 is a batch roaster.

(continued)

Appendices - The numbering of the references in the appendices is not consistent with the table of contents (page 9.13.2-7) which identifies the numbering sequences utilized in the two tables 9.13.2-1+2.

Appendix A reads "Reference 1" should be "Reference 3"
Appendix B reads "Reference 3" should be "Reference 4"
Appendix C reads "Reference 4" should be "Reference 5"
Appendix D reads "Reference 5" should be "Reference 6"
Appendix E reads "Reference 7" should be "Reference 8"
Appendix F reads "Reference 8" should be "Reference 9"
Appendix G reads "Reference 9" should be "Reference 10"

With respect to new point source data, we have been advised by one roasting company that they will provide data from a recently conducted test on their plant(s). We feel that this new updated data will provide important information to include in a revised document.

Please contact us again if you have specific questions or comments regarding this response to your request dated February 14, 1995.

Sincerely,



George E. Boecklin
President

GEB/mc