

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/

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TO: Roy Huntley, EPA

FROM: Susan Stamey-Hall, Radian *SSH*

DATE: August 25, 1995

SUBJECT: PM Emission Factors for Residential Oil-Fired Furnaces

Task 4 of Work Assignment 50 includes updating emission factors in Chapters 1 and 3 of AP-42. Section 1.3 contains emission factors for oil-fired combustion sources. The Energy Research Center, Inc. (ERC) provided two reports containing particulate matter (PM) emission data for several new oil-fired residential furnaces (letter from John Batey, ERC, dated April 4, 1995). Based on these reports, we have determined that new furnaces (i.e., post-1970) emit significantly less PM than older furnaces (i.e., pre-1970). The emission factor in the 5th Edition of AP-42 is based on pre-1970 data.

Table 1 presents the PM data for newer furnaces. The current PM emission factor is 3 lb/1000 gal, rated "A", and based on 33 pre-1970 data points. The PM emission factor for newer furnaces is 0.4 lb/1000 gal, based on 9 post-1970 data points, and rated "C". Due to the "C" rating, we suggest leaving the existing PM factor in AP-42, along with the corresponding references, and qualifying it as "pre-1970 furnaces". Further, we suggest adding the PM emission factor of 0.4 lb/1000 gal, with the corresponding references, and qualifying it as "post-1970 furnaces".

Table 2 summarizes the proposed changes. Please call me if you have questions or comments.

cc: Clint Burklin, Radian
Task 4 files

Table 1. Summary of Particulate Emission Data for New Residential Oil-Fired Furnaces

Reference/Page	Data Rating	Furnace/Burner type	Filterable PM Emission Factor (lb/1000 gal)
McCrillis, Page 4	B	Thermo-Pride Model:M-SR	0.42
Krajewski, Page 40-42	B	R.W. Beckett Co. Model: AF	0.38
Krajewski, Page 40-42	B	R.W. Beckett Co. Model: AFG	0.3
Krajewski, Page 40-42	B	R.W. Beckett Co. Model: AFG	0.4
Krajewski, Page 40-42	B	Riello Corp. Model: Mectron 3M	0.65 0.26 0.35
Krajewski, Page 40-42	B	Energy Kinetics Inc. Model: System 2000	0.4 0.24
Krajewski, Page 40-42	B	Bentone Electrol Oil Model: Airtronic	0.38
Krajewski, Page 40-42	B	Combustion Technology No model number	0.35
Krajewski, Page 40-42	B	Foster Miller Carlin Co. No model number	No data
		Average:	0.4

Table 2. Summary of Proposed Changes for Residential Furnaces

Pollutant	5th Edition AP-42 Emission Factor (lb/1000 gal)	5th Edition Emission Factor Rating	Proposed Emission Factor (lb/1000 gal)	Proposed Emission Factor Rating
Filterable PM	3	A	--	--
Pre-1970	--	--	3	A
Post-1970	--	--	0.4	C