

REPORT ON REVISIONS TO
5TH EDITION AP-42

Section 3.3

Gasoline and Diesel Industrial Engines

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1.0 INTRODUCTION

This report supplements the Emission Factor (EMF) Documentation for AP-42 Section 3.3, Gasoline And Diesel Industrial Engines, dated April, 1993. The EMF describes the source and rationale for the material in the most recent updates to the 4th Edition, while this report provides documentation for the updates written in both Supplements A and B to the 5th Edition.

Section 3.3 of AP-42 was reviewed by internal peer reviewers to identify technical inadequacies and areas where state-of-the-art technological advances need to be incorporated. Based on this review, text has been updated or modified to address any technical inadequacies or provide clarification. Additionally, emission factors were checked for accuracy with information in the EMF Document and new emission factors generated if recent test data were available.

If discrepancies were found when checking the factors with the information in the EMF Document, the appropriate reference materials were then checked. In some cases, the factors could not be verified with the information in the EMF Document or from the reference materials, in which case the factors were not changed.

Four sections follow this introduction. Section 2 of this report documents the revisions and the basis for the changes. Section 3 presents the references for the changes documented in this report. Section 4 presents the revised AP-42 Section 3.3, and Section 5 contains the EMF documentation dated April, 1993.

2.0 REVISIONS

2.1 General Text Changes

Information in the EMF document was used to enhance text concerning emissions and controls. Also, at the request of the EPA, the metric units were removed.

2.2 Emission Factors

All emission factors (NO_x, CO, SO_x, PM-10, TOC, organic compounds, etc.) were checked against information in the EMF Document and no changes were necessary.

2.3 Carbon Dioxide, CO₂

CO₂ emission factors in Table 3.3-2 were originally calculated assuming 100% conversion of fuel carbon content to CO₂; however; 1% of liquid fuels typically pass through the combustion process unoxidized.⁽¹⁻⁶⁾ The CO₂ factors in Table 3.1-1 were modified to reflect 99% conversion.

3.0 REFERENCES

1. G. Marland and R. M. Rotty, *Carbon Dioxide Emissions From Fossil Fuels: A Procedure For Estimation And Results For 1951-1981*, DOE/NBB-0036 TR-003, Carbon Dioxide Research Division, Office of Energy Research, U. S. Department of Energy, Oak Ridge, TN, 1983.
2. A. Rosland, *Greenhouse Gas Emissions in Norway: Inventories and Estimation Methods*, Oslo: Ministry of Environment, 1993.
3. *Sector-Specific Issues and Reporting Methodologies Supporting the General Guidelines for the Voluntary Reporting of Greenhouse Gases under Section 1605(b) of the Energy Policy Act of 1992* (1994) DOE/PO-0028, Volume 2 of 3, U.S. Department of Energy.
4. G. Marland and R. M. Rotty, *Carbon Dioxide Emissions From Fossil Fuels: A Procedure For Estimation And Results For 1950-1982*, Tellus 36B:232-261, 1984.
5. *Inventory Of U. S. Greenhouse Gas Emissions And Sinks: 1990-1991*, EPA-230-R-96-006, U. S. Environmental Protection Agency, Washington, DC, November 1995.
6. *IPCC Guidelines For National Greenhouse Gas Inventories Workbook*, Intergovernmental Panel on Climate Change/Organization for Economic Cooperation and Development, Paris, France, 1995.