



U.S. Department  
of Transportation  
  
Research and  
Special Programs  
Administration

400 Seventh Street, S.W.  
Washington, D.C. 20590

FEB 19 1993

Dr. Kuldeep Verma  
Wastewater, Soil & Gas  
Analysis Inc.  
1868 Southfield Rd.  
Lincoln Park, MI 48146

Dear Dr. Verma:

This is in response to your letter regarding the classification of gas samples (blast furnace and coke oven gas) in a 1 liter "Tedlar" gas sampling bag, enclosed in a cardboard mailing tube or box. I apologize for the delay in responding and hope it has not caused any inconvenience.

The average percent composition of these gases is as follows:

<u>Gases</u>	<u>Blast furnace gas</u>	<u>Coke oven gas</u>
Hydrogen	6 - 8%	55 - 60%
Oxygen	1%	1%
Nitrogen	45 - 55%	4 - 5%
Methane	1%	25%
CO	18 - 22%	4 - 5%
CO <sub>2</sub>	19 - 20%	3%
Ethylene	<1%	2%
Ethane	<1%	1%

Specifically, you asked whether the above-mentioned gas mixtures are flammable or nonflammable, and what UN numbers, labeling, and shipping restrictions apply.

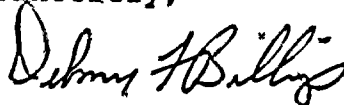
You did not provide sufficient information on these materials to make a determination regarding classification. Under 49 CFR 173.22, it is the shipper's responsibility to properly classify a hazardous material. This office does not perform that function.

The requirements for shipping hazardous materials (e.g., gas samples) are found in the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). A list of suppliers is enclosed. The HMR address requirements for classification, packaging, preparation of shipping papers, marking, labeling, placarding, emergency response information, and training.

The definitions for a Division 2.1 (flammable) gas and a Division 2.2 (non-flammable) gas are located in § 173.115. Packagings for both Division 2.1 and 2.2 are found in § 173.302. You may wish to have these gas mixtures tested in a laboratory to determine their proper classification.

I hope this information is helpful. If we can be of further assistance, please contact us.

Sincerely,



Delmer F. Billings  
Chief, Regulations Development  
Office of Hazardous Materials Standards

Enclosure

Engrum

File: 173, 115  
SC: 116, 195

**WASTEWATER, SOIL & GAS ANALYSIS INC.**  
1868 Southfield Rd.,  
Lincoln Park, MI 48146  
Ph. 313 386 8180 , Fax 313 389 1639

Mr. Edward T. Mazzullo,  
Director, Haz Met Standards  
Department of Transportation.

Dear Mr. Mazzullo

We are specializing in analysis of blast furnace gas and coke oven gas (classified as manufactured gases). We are trying to look into a possibility to do it by mail where industrial clients shall fill gas sample in 1 liter Tedlar gas sampling bag, enclose it in a cardboard mailing tube or box and call UPS to pick up. Although sample can reach by ground but we prefer to receive it by airmail overnight so that results are faxed the next day. The gas is filled under a low pressure of 2-3psi.

The average percent composition of these gases is as follows:

	Blast furnace gas	Coke oven gas
Hydrogen	6 - 8%	55-60%
Oxygen	1%	1%
Nitrogen	45-55%	4-5%
Methane	1%	25%
CO	18-22%	4-5%
CO <sub>2</sub>	19-20%	3%
Ethylene	< 1%	2%
Ethane	< 1%	1%

I am told by an expert that manufactured mixed gases like blast furnace gas are nonflammable but I need your advise. Which gas mixtures of above are classified as flammable and nonflammable, their UN numbers, labelling and shipping restrictions need to be clearly spelled out. What is required of the clients shipping these samples to us? We would need written varification of solutions to all of the querries, which can be faxed to us at 313 389 1639. Any relevant published material be mailed at above address.

Sincerely,



Dr. Kuldeep Verma,  
3/7/97