Anderson Laboratories Inc. COMBUSTION TOXICOLOGY SERVICES

Report of Mortality Following Single Exposure to Thermal Decomposition Products of Test Samples

1. Purpose

The purpose of this study was to evaluate toxicity of thermal decomposition products of one test sample, submitted by Monoglass Incorporated. (Contract 110488-1, A.L.Test 144,Sample 144).

2. General Method

The test method employed is the protocol of the University of Pittsburgh for evaluation of acute toxicity of thermal decompositon products (Appendex A).

Test materials are preconditioned to approximately 50% relative humidity for a period of at least 24 hours and weighed immediately before use. The materials are heated at 20^{o} C /minute. During the thirty minute test period animals (positioned for head only exposure) breathe the atmosphere generated by the heated sample. At the end of the thirty minute exposure and a ten mintue recovery

period animals are examined for survival and eye damage.

A series of sample weights is tested, allowing the construction of a concentration response curve in which sample size (grams) is plotted versus percent mortality.

In this test the sample never lost 1% of its weight. As a result an arbitrary temperature (450 °C)was chosen for the initiation of the animal exposure.

The analysis of exposure chamber atmosphere for carbon monoxide, carbon dioxide, and oxygen is performed by nondispersive infrared analysis (instruments manufactured by Horiba - carbon monoxide and carbon dioxide - and Lynn -oxygen) with each test sample at its LC_{50} weight.

3. Results

In this series of tests the range of rapid weight loss could not be determined due to instability of large sample on weight sensor. The tables and graphs summarize, mortality, and physical and chemical data for these tests.

4. Approval

Rosalind C Anderson — 12/6/88

Rosalind C. Anderson, Ph.D. — Date

DEPARTMENT OF STATE
Gas Toxicity Data File
Box 115
ny, NY 12260-0115

DOS USE ONLY | FILE NUMBER

e Gas Toxicity

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T B. PRODUCT TEST REPORT LABORATORY TEST DATA (TYPE IN ALL CAPS)

ER OF SAMPLES TESTED	LC_{50}	95% CONFIDENCE INTERVAL	FURNACE TEMPERATURE AT 1% SAMPLE MASS LOSS
6	212.2 g	180.2-249.9 g	298 °C
CE TEMPERATURE RANGE ST RAPID MASS LOSS	-- °C	MEAN FURNACE TEMPERATURE AT SPONTANEOUS IGNITION	377 °C
		RESIDUE (SAMPLE AVERAGE)	87.8 %

ITEMS 8-16, FROM A SINGLE RUN AT OR NEAR THE LC_{50} TEST SAMPLE MASS:

3000 ppm	Maximal concentration of carbon monoxide in the exposure chamber
356 °C	Furnace temperature at the point of maximal carbon monoxide
3.50 %	Maximal concentration of carbon dioxide in the exposure chamber
356 °C	Furnace temperature at the point of maximal carbon dioxide
17.7 %	Minimal concentration of oxygen in the exposure chamber
356 °C	Furnace temperature at the point of minimal oxygen
0	Number of times the exposure chamber temperature exceeded 45°C
-- sec	Average duration of exposure chamber temperatures in excess of 45°C
2	Eye condition of test animals (select one): (1)All apparently normal (2) Some apparent damage (3) Some severe damage

CAL DESCRIPTION OF THE TEST LC_{50} SAMPLE USED

MONOGLASS INC. FIBER/POLYMER INSULATION

AND OBSERVATIONS

ITEM 5 COULD NOT BE DETERMINED

ST NUMBER	NAME OF TESTING ORGANIZATION	
ALNM-881129-144	29	ANDERSON LABORATORIES, INC.
IRECTOR OR COORDINATOR	TELEPHONE NUMBER	
ROSALIND C. ANDERSON	22	617 364-7357

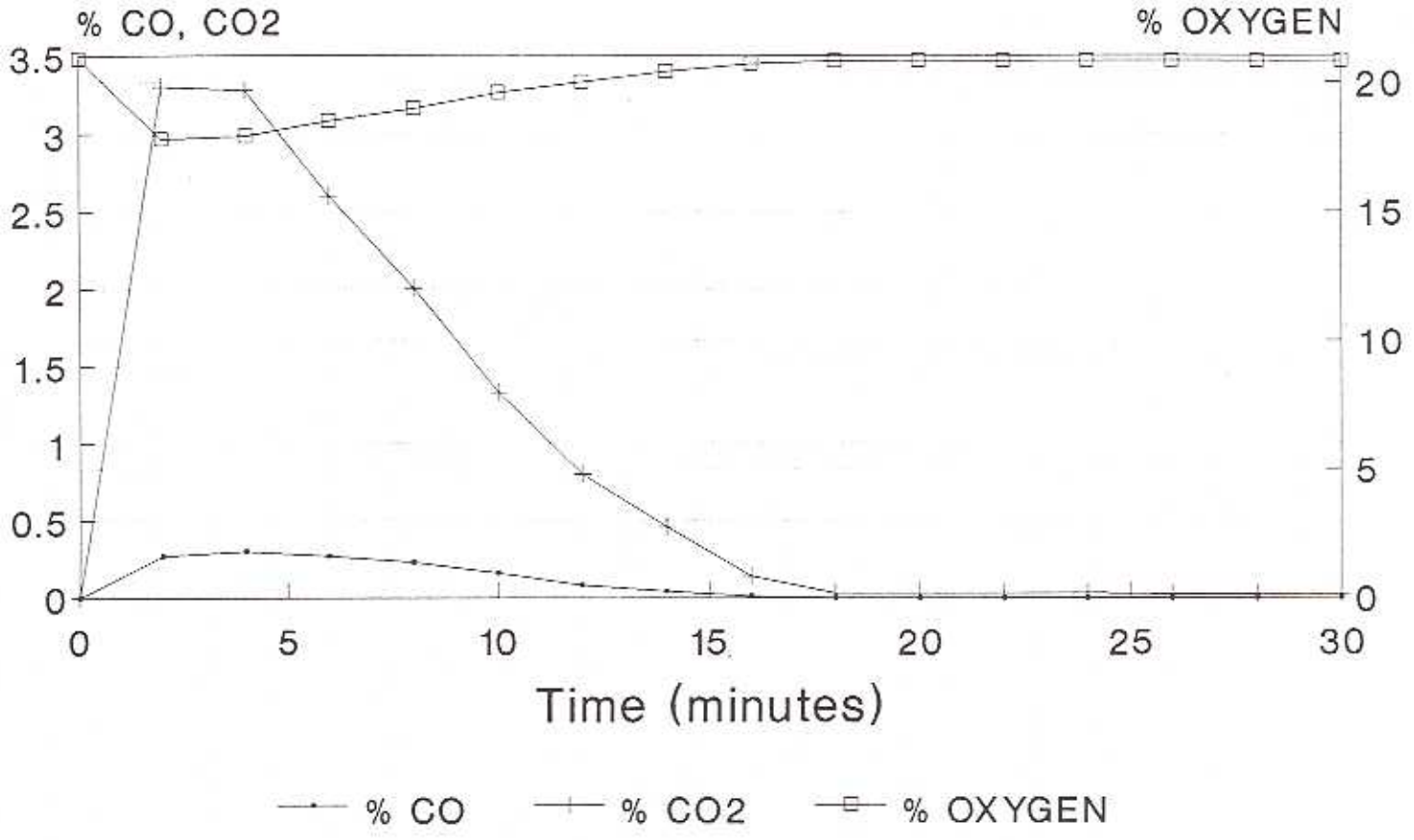
RATORY AFFIRMATION — I affirm that the test, the results of which are reported herein, was conducted in compliance with CRR 1120.2(a).

ure X Rosalind C Anderson Date 12/6/88

me ROSALIND C. ANDERSON Title PRESIDENT
(PRINT OR TYPE)

Gas Analysis

Monoglass Inc. Fiber/Polymer Insulation



212.2 GM SAMPLE, TEST #144, SAMPLE #144

Anderson Laboratories Inc. COMBUSTION TOXICOLOGY SERVICES

Monoglass Inc.
Biological, Physical, and Chemical Data
Fiber/Polymer Insulation

AL Test # 144, Sample # 144	Case # 110488-01
LC_{50}[a]	212.2 grams
95% Confidence interval[a]	180.2 - 249.9 grams
LC_{50} sample dimensions/description[b]	powder/chunks
Furnace temperature at 1% weight loss[b]	298 °C
Furnace temperature range at most rapid weight loss[b]	- °C
Furnace temperature at apparent spontaneous flame (mean of 2 samples)	377 °C
Percent residue (mean of 5 samples)	87.8%
Maximal CO in exposure chamber[b]	0.30% 3000 PPM
Furnace temperature at maximal CO[b]	356 °C
Maximal CO_2 in exposure chamber[b]	3.50%
Furnace temperature at maximal CO_2[b]	356 °C
Minimal O_2 in exposure chamber[b]	17.7%
Furnace temperature at minimal O_2[b]	356 °C
Number of times exposure chamber exceeded 45°C[b]	none
Duration exposure chamber exceeded 45°C[b]	- sec
Eye damage (corneal opacity)[c]	yes
Eye damage (severity)	some (2)
Number of test runs on sample material	6
Date testing completed	11/29/88

a Calculated according to the method of C. Weil, 1952.
b From single experiment using 212.2 gram test sample.
c From single experiment with animals using 198.0 gram test sample; sample weight equal or closest to the LC_{50} value.