EXHIBIT 1

United States Public Health Service
Region VIII
1961 Stout Street, Room 498
Denver, Colorado 80294-3538

August 1, 2000

Dr. Linda Rosenstock, Director
National Institute for Occupational
Safety & Health
Hubert H. Humphrey Building Room 715H
200 Independence Ave., S.W.
Washington, DC 20201

Dear Dr. Rosenstock,

I would like to bring to your attention a significant occupational and public health concern regarding the widespread dissemination of amphibole (actinolite-tremolite series) asbestos in Libby, Montana, and potentially in vermiculite end-products used throughout the country. As you may be aware, NIOSH researchers evaluated vermiculite miners, that were exposed to asbestos, in Libby, Montana in the early 1980's. NIOSH investigators found significantly elevated risks of asbestos-related malignant and non-malignant respiratory disease among these workers. Concurrently, Dr. Jim Lockey at the University of Cincinnati identified elevated pulmonary disease among workers with much lower asbestos exposures at a facility processing Libby vermiculite in Ohio. These articles have been included for your information.

In November 1999, Libby became the focus of national attention when it was reported that a number of residents that did not work at the vermiculite mine or processing facilities were suffering from asbestos-related diseases. Subsequently, researchers from the Environmental Protection Agency (EPA), Public Health Service (PHS) Region 8, and Agency for Toxic Substances and Disease Registry (ATSDR) began intensive environmental and public health investigations of the site. Medical screening (e.g., chest x-rays, pulmonary function testing, questionnaires) is currently being conducted on 4200 former workers, family contacts, and others potentially at risk. NIOSH researchers (Dr. Robert Castellan, Dr. Leslie Stayner, Dr. Pat Sullivan, Dr. Vince Castranova, Mr. Ken Wallingford, and Mr. Ralph Zumwalde) have also been providing intermittent technical assistance to these efforts.

One issue that has very recently come to our attention, is that end-product vermiculite insulation, and most likely other end-products, apparently contained appreciable quantities of asbestos, but were marketed, sold, and used throughout the country without adequate labeling or warnings and were commonly considered to be non-toxic (see enclosed information and video tape). Internal company documentation and recent testing of residential insulation materials, reportedly used in over one million homes, reveals that even minimal handling by workers or residents poses a substantial health risk (airborne exposures up to150 times the current occupational standards (0.1 f/cc)).

Recent discussions between the aforementioned federal partners working at the Libby site identified the pressing need for increased NIOSH participation and response to occupational health issues of concern.

Exemption (b)(5)

If I can be of any further assistance to you in this matter please contact me at (303) 844-7860 or Dr. Aubrey Miller at (303) 844-7857.

Sincerely,

Hugh S. Sloan

Hugh S. Sloan, D.S.W.
Assistant Surgeon General
Regional Health Administrator

Enclosures

EXHIBIT 2

U.S. Environmental Protection Agency

Asbestos

General Information
Asbestos in Your Home
Asbestos Ban and Phase Out
Vermiculite
EPA Regional and State Contacts
Information Resources
Laws and Regulations
NDAAC Directory

Asbestos in Vermiculite Insulation

The U.S. Environmental Protection Agency (EPA) offices have received a large number of phone calls from citizens concerned about vermiculite insulation in their home that might be contaminated with asbestos. EPA is gathering more information about vermiculite insulation and other products containing vermiculite. If you suspect vermiculite insulation is in your home, the safest thing is to leave the material alone. If you decide to remove or must otherwise disturb the material due to a renovation project, consult with an experienced asbestos contractor. The following information provides a common-sense approach to help you find out what kind of insulation is in your home and decide what to do if you have vermiculite insulation.

Background
Why is it a problem?
What does it look like?
What should I do if I have vermiculite insulation?
How do I find an accredited asbestos removal professional?
Where can I get more information?

Background

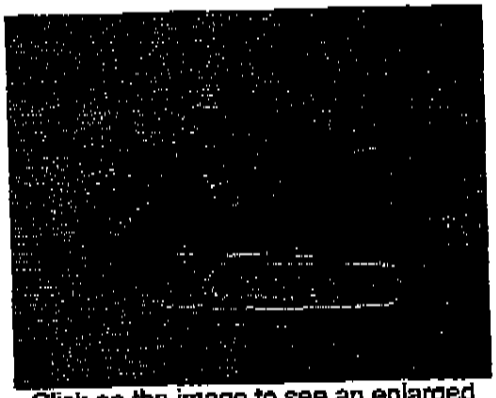
Product names cannot be used to determine if your insulation might contain asbestos. All vermiculite is likely to contain small or trace amounts of asbestos. EPA believes that a number of manufacturers produced insulation from vermiculite. One mine in the United States produced over 70 percent of the world's vermiculite before the mine was closed in 1990. Vermiculite products generated from this mine were likely to have been contaminated with asbestos.

Why is it a problem?

If disturbed, asbestos fibers in vermiculite insulation may get into the air. These fibers can be inhaled and become trapped in the lungs where they may cause diseases such as asbestosis, lung cancer, and mesothelioma. These diseases can develop many years after exposure to asbestos.

What does it look like?

Vermiculite is a mineral that is shaped like a small nugget, and varies in color from silver-gold to gray- brown. The asbestos fibers contained in vermiculite insulation are generally too small to be seen without magnification. Only a trained technician using careful microscopic examination can see asbestos fibers.



Click on the image to see an enlarged picture of vermiculite.

What should I do if I have vermiculite insulation in my home ?

Look at the insulation without disturbing it. If it appears you have vermiculite insulation in your home, we recommend the following steps:

- If possible, leave the insulation undisturbed. Asbestos particles will not become airborne if the insulation is contained. If it's sealed behind wallboards and floorboards or is isolated in an attic that is vented outside, the best approach is to keep it in place.

- If you are planning to remodel or replace vermiculite insulation, have it tested first.
    - EPA recommends using a trained and accredited professional to conduct the tests. If you decide to remove the vermiculite home insulation, use accredited, licensed asbestos removal professionals. Use of a "negative pressure enclosure" technique will prevent asbestos fibers and dust from escaping from the attic into the rest of the home. **Do not attempt to do this yourself.** You could spread asbestos fibers throughout your home, putting you and your family at risk of inhaling asbestos fibers.

    - After the vermiculite insulation is removed, you may want to consider having air monitoring tests done in your attic and throughout the living areas of your home. This is to ensure that the concentration of asbestos fibers in the home is low or not present.

How do I find an accredited asbestos removal professional?

An accredited asbestos inspector has undergone approved training and then taken examinations to be accredited. He or she will be able to take samples of the insulation, provide information on the results, and advise about additional tests or options to consider. Inspectors can be found in the Yellow Pages under "Asbestos Consulting and Testing" or "Asbestos Abatement." Ask the inspector to provide the name of the company that trained, accredited him or her. Call that company to confirm whether a particular inspector has had the required training and has up-to-date accreditation. If your State has licensing, confirm that the inspector's license is also current. Companies that can test the air in your home will be found under the same listings.

Where can I get more information?

Information can be found on the hotline and web sites below as it becomes

available.

For current information on asbestos and health related information, contact EPA's TSCA Hotline at 1-202-554-1404 or visit EPA headquarters' Asbestos web site: www.epa.gov/asbestos

Also visit the federal Agency for Toxic Substances and Disease Registry (ATSDR) website at www.atsdr.cdc.gov. EXIT disclaimer

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EPA Home | Privacy and Security Notice | Contact Us

Last updated on Thursday, June 20th, 2002
URL: http://www.epa.gov/asbestos/insulation.html

EXHIBIT 3

CAMBRIDGE **CONFIDENTIAL** MID APR 26 1977

TO: E. S. Wood

DATE: April 19, 1977

FROM: Julie C. Yang

SUBJECT: Tremolite Content in ZONOLITE® Products

CC: H. C. Duecker
H. A. Eschenbach
F. W. Eaton
W. R. Hanlon
R. M. Vining
B. R. Williams
J. W. Wolter
C. C. Ou
S. C. Vaughan
File: 71-046

OBJECTIVE:

The objective of this study is to determine the tremolite content in all ZONOLITE products made of both Libby and Kearney vermiculites. In a few cases, repetitious analyses were made for product used on job-sites, so that correlation can be made with the fiber counting results.

METHOD

When tremolite is determined from the product as received, in most products tremolite was not found by conventional analytical methods. The trace amount can be determined only when intensive concentration techniques are employed. Tremolite determinations are then made from the fractions by quantitative x-ray diffraction analysis and with the aid of petrographic microscopic examination.

1. Terra-Lite Vermiculites, Vermite, Redi-Earths and Metro-Mixes

The schematic method of analysis and the results have been reported in T&A 50110 with limited distribution. They are also reported here as shown in schemes 1, 2, and 3.

2. Scott Turf Builder

The method of concentration was very similar to that of Terra-Lite Vermiculite scheme #1, except in the water flotation step. A longer soaking period was needed to solubilize all the nutrients present, which was approximately 50% of the total weight.

3. ZIC, Attic Fill, Masonry Fill

Same concentration method as Terra-Lite (scheme #1).

EXHIBIT 4 Emergency Notice

4. MONOKOTE

Analysis of tremolite in MONOKOTE was the most difficult and time-consuming procedure. The glass fibers were screened off, plaster of Paris was dissolved in water about 50-100 times the weight, expanded vermiculite was floated off, and all the washings were combined, filtered and dried. The filter paper and the organic matter were then burnt off; the remaining residue was x-rayed for the tremolite analysis. Detailed separation and concentration procedure is shown in scheme #4.

5. ZONOLITE 3300

Separation and concentration techniques are similar to that of MONOKOTE, but dilute acid (in HCl) was used to digest the portland cement binder instead of using large excess of water for solubilizing plaster of Paris. The procedure is shown in scheme #5.

RESULTS

A. Tremolite Content in ZONOLITE Products

Kearney

ID No.	Product Description	% Tremolite	
1	ZIC K-4 Kearney	5.466	
2	ZIC K-4/5 B	1.715	
4	Masonry Fill K-4	1.605	
9	Masonry Fill K-3	.0504	
11	MK-4 Kearney 3	<0.08	
13	MK-5 Kearney 3	<0.08	
17	Terra-Lite Kearney	4.319	
18	Terra-Lite T.R.	0.016	
20	Metro Mix 200 T.R.	(as rec'd) 0.398	(dried)* .477
21	Redi-Earth T.R.	(as rec'd) 0.048	(dried) .071
23 (5)	Vermite Carrier Grade #4, Kearney (St.Louis)	0.083 (<0.08)	
26	Metro-Mix 300, T.R.	(as rec'd) 0.081	(dried) 0.121
27	Metro-Mix 350, T.R.	(as rec'd) 0.156	(dried) 0.259

*Metro-Mixes and Redi-Earths were computed both in as-received basis and oven-dried basis since the product has substantial amount of moisture.

E. S. Wood
m: J. C. Yang
il 20, 1977

by No.	Product Description	% Tremolite
0	MK-4 (L-3) West Chicago	< 0.10
6	Masonry Fill (L4D-18) West Chicago	0.01
9	Terra-Lite, W. Chicago	0.035
25	Attic Fill (L-2) W.Chicago	.013
28	Redi-Earth (L) Santa Ana	(as rec'd) .031 (dried) .051
14	Redi-Earth (L) W. Chicago	< 0.02
15	Metro-Mix 200 (L) W. Chicago	(as rec'd) 0.034 (dried) <.043
12	Zonolite 3300 (L-3) W. Chicago	<0.007
3	Concrete Aggregate (L4D-18) W. Chicago	0.344
16	Scott Turf Builder (L) Dark	<0.009
22	Scott Turf Builder (L) Light	<0.009

B. Tremolite Content in Zonolite Job-site Samples

ID No.	Product Description	Location	% Tremolite
8	ZK Roof Deck (K 4/5 B)	Montgomery, Ala.	2.828
9	Masonry Fill (K-3)	Columbus, Ohio	0.050
28	Redi-Earth (L-4)	Forest Service, Santa Ana	0.031 (.051)*
51	Monokote-5 (L-3)	San Diego	<0.105
54	Masonry Fill (K-4)	W.Palm Beach, Fla.	2.86
55	ZIC (K-4)	Edison H.S., Miami, Fla.	0.476
58	Masonry Fill (L-3)	Mashburn & Coe Bldg., Oklahoma	0.250
57	Monokote-4 (L-3)	Hyatt Regency, Dallas	0.240

*oven-dried basis

DISCUSSION and COMMENTS

1. Some of the Kearney products showed high "tremolite" content since x-ray diffraction method cannot distinguish massive tremolite (Hornblende?) and fibrous tremolite. Microscopically, most of the Kearney material showed trace or absence of fibers.

2. Tremolite fibers can be reduced if a screened vermiculite is used such as fine vermite. We have observed that most of the fibers are concentrated in the fines.

To: E. S. Wood
From: J. C. Yang
April 20, 1977

3. The percentage of tremolite in several samples was expressed in less than a certain value which indicated that tremolite fiber was not detected by our x-ray method. The limit of detection for tremolite by x-ray diffraction technique is about 0.2%. When concentration factors were taken into consideration, the possible maximum tremolite content in each sample was indicated in the analyses.

4. Most of the Monokote showed undetectable tremolite content except #51, an MK-4 product used at Hyatt Regency in Dallas, which showed a 0.24% tremolite; the value has been double checked and is real.

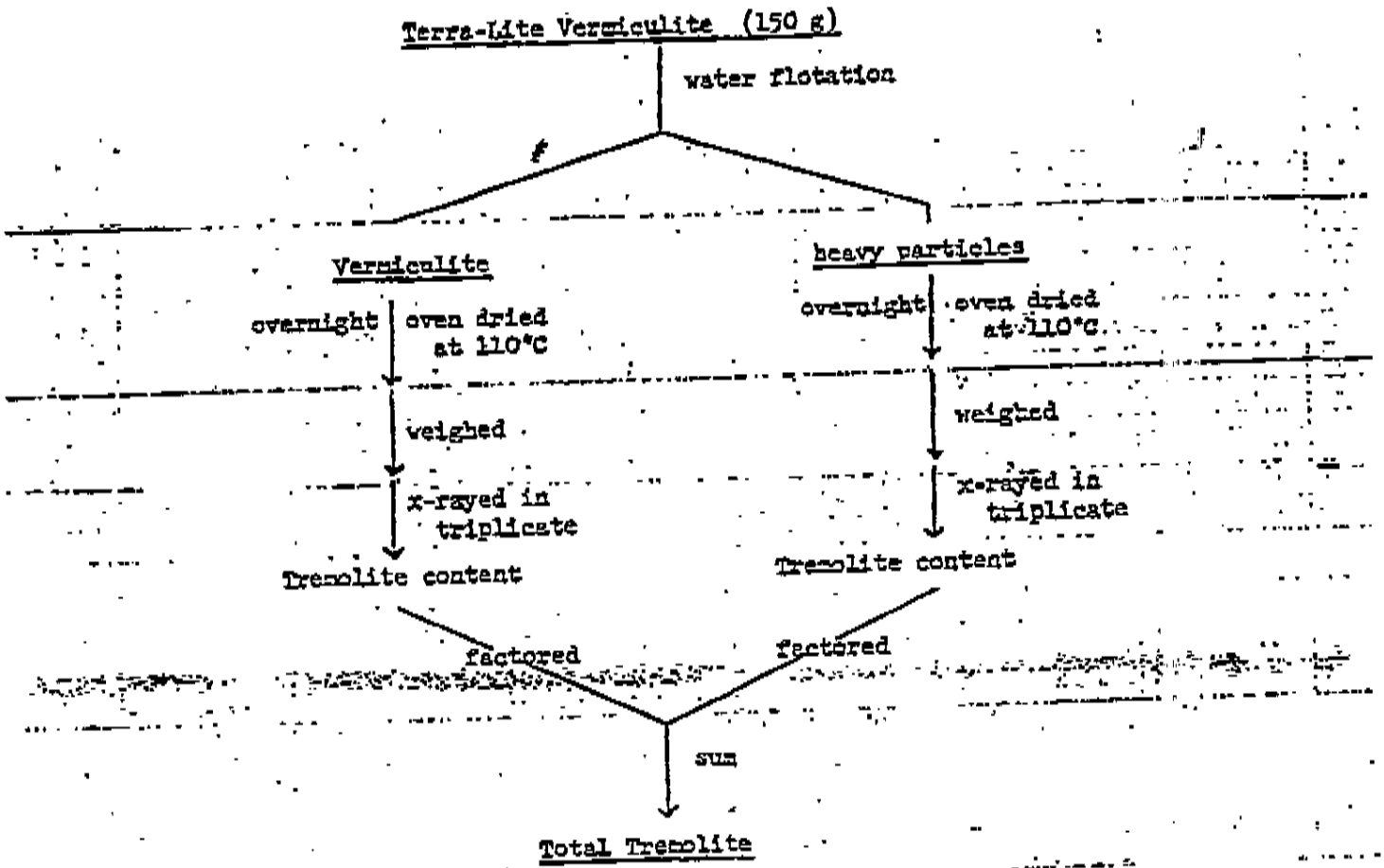
Julie C. Yang

Julie C. Yang

JCY:mlr

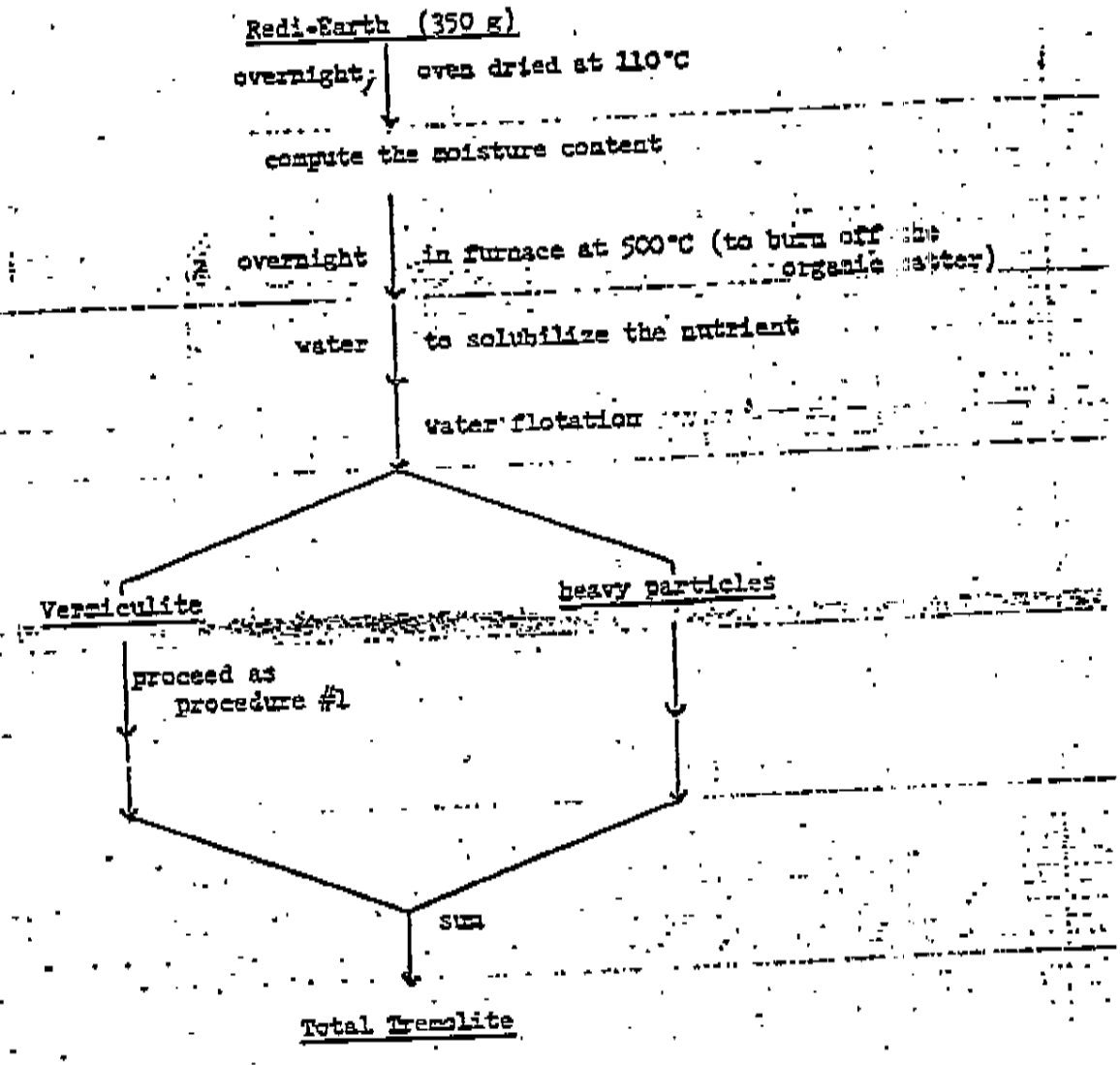
1. SCHEMATIC DIAGRAMS FOR TREMOLITE ANALYSIS

1. Tremolite Determinations in Terra-Lite Vermiculite



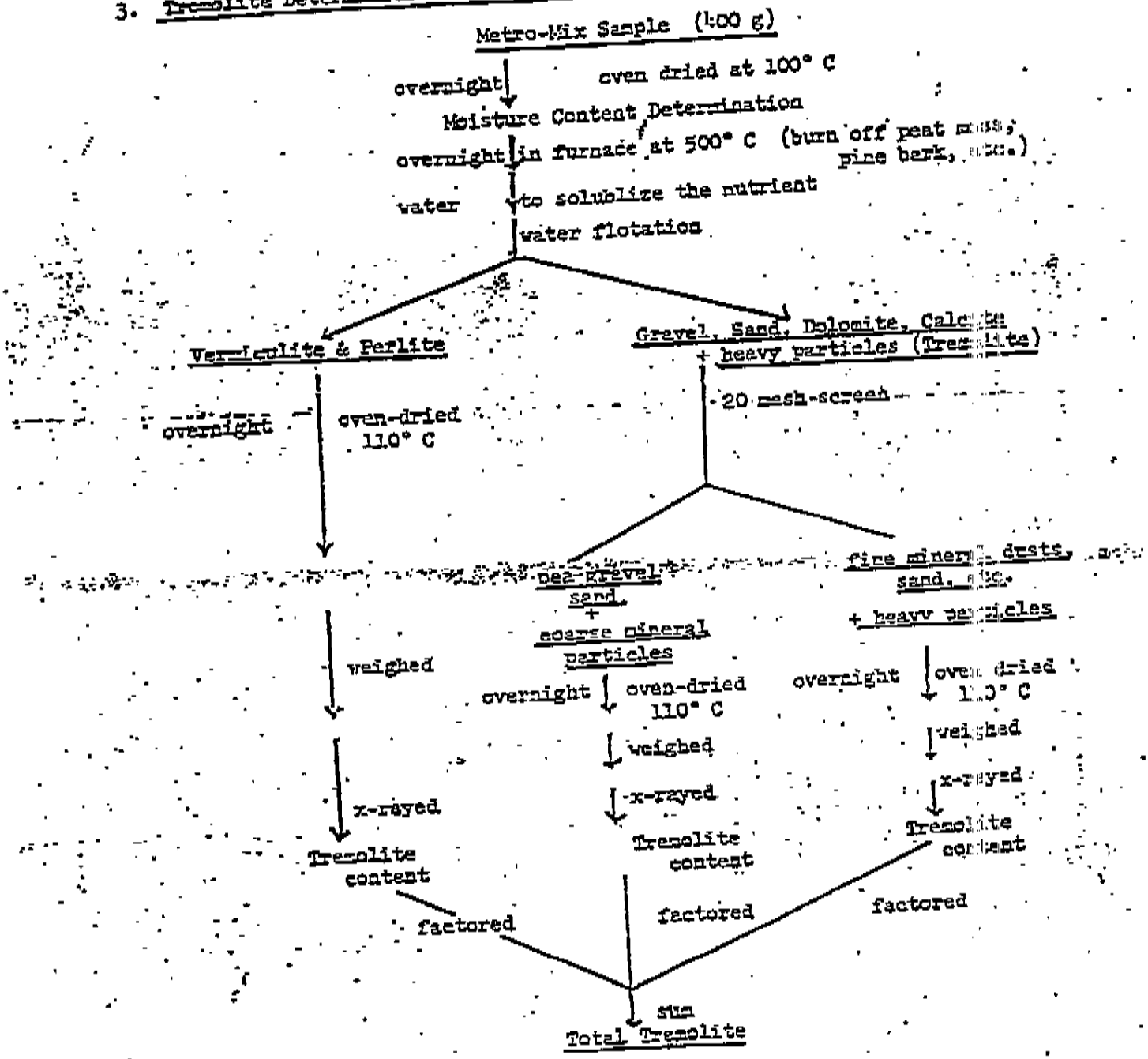
Julie C. Yang
April 19, 1977

2. Tremolite Determination in Redi-Earth



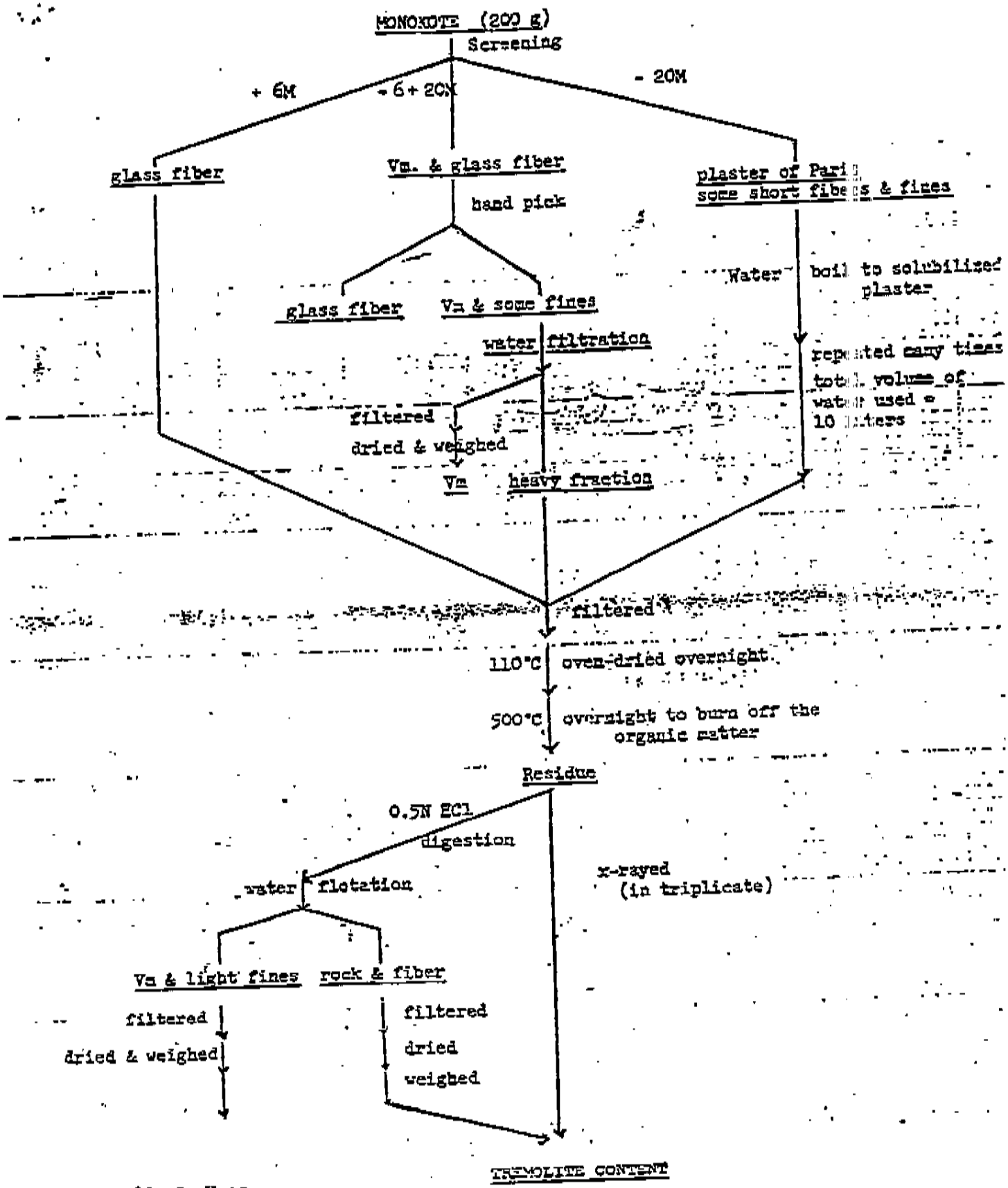
Julie C. Yang
April 19, 1977

3. Tremolite Determinations in Metro Mix



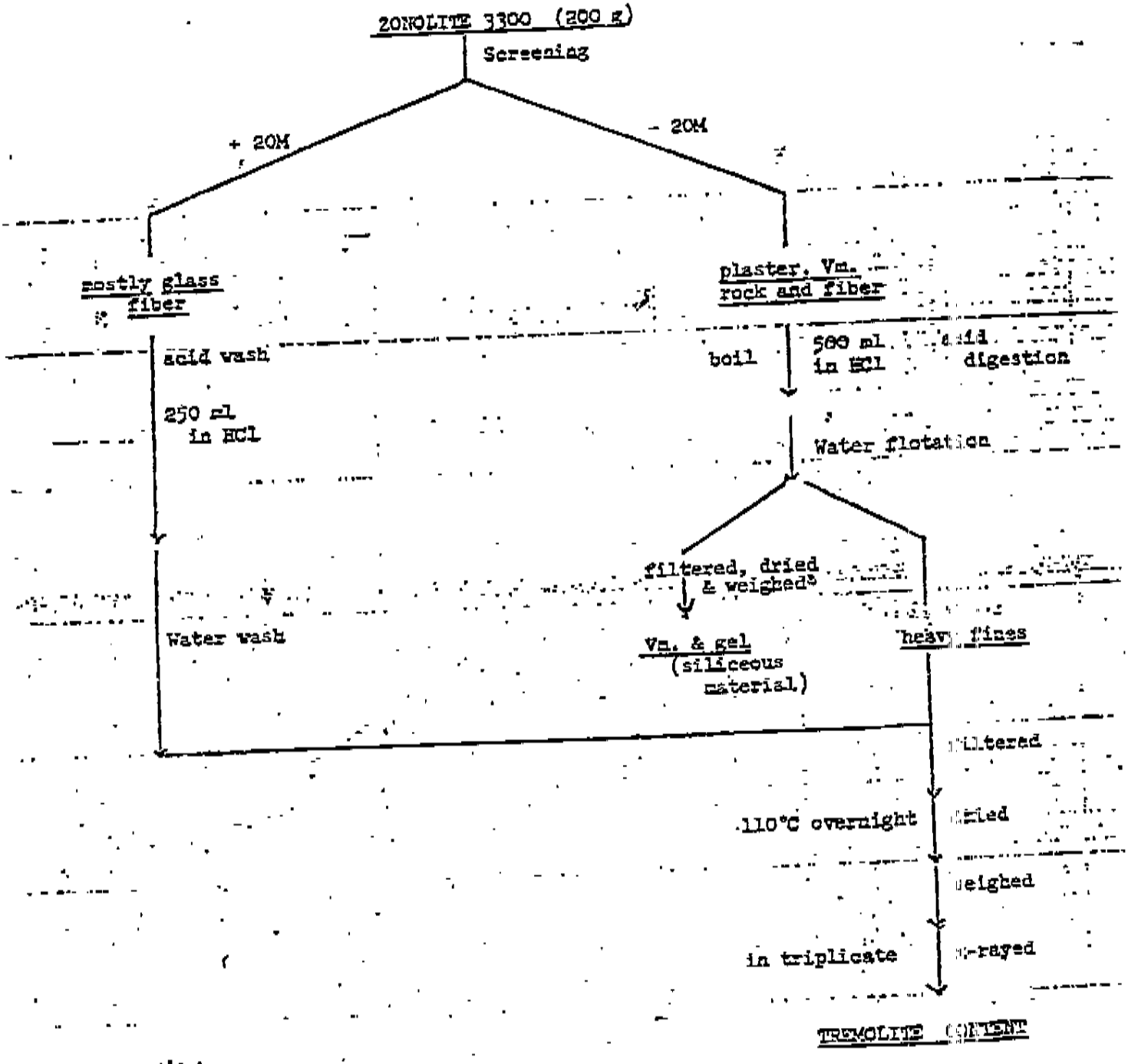
Julie C. Yang
April 19, 1977

4. TREMOLITE DETERMINATION IN MONOKOTE



Julie C. Yang
April 19, 1977

5. TREMOLITE DETERMINATION IN ZONOLITE 3300



Julie C. Yang
April 19, 1977

EXHIBIT 4

024325

02302516

Construction Products Division

GRACE

DATE: April 7, 1977

TO: E. S. Wood
J. W. Wolter
B. R. Williams
W. R. Hanlon
O. M. Favorito

FROM: R. C. Ericson

cc: W. F. McCord
H. C. Duecker
R. Locke
F. Eaton

SUBJECT: 2nd Draft Proposal for MSDS for Vermiculite Concentrate & Finished Products

Jack Wolter and I met today with Bruce Blessington and Bill Hanlon to develop a "sales viewpoint" on my first draft proposals of April 5th. Essentially we were selecting from among the range of options proposed and editing language to take into account potential adverse impact on the business. The result is a concensus which is attached as (5) "2nd Draft" recommendations. These are to be further reviewed at the April 8th Fiber Committee meeting.

R. C. Ericson

R. C. Ericson

rce/lpj

PLAINTIFF'S EXHIBIT 131

2nd DRAFT

ATTACHEMENT

0624326

1. LIBBY TREMOLITE STATEMENT: Contains less than * % by weight of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

02302817

KEARNEY TREMOLITE STATEMENT: Contains less than * % by weight of a naturally occurring mixture of amphibole contaminants; hornblend and tremolite. The predominant morphology of the contaminant is platy (non-fibrous). OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Less than 5%** of the contaminant is in a form which can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* % TREMOLITE TABLE BASED ON AVAILABLE CFD TREMOLITE TEST DATA		
MIXES	LIBBY	KEARNEY
MONOKOTE	0.10%	.2-2.0%
ZONOLITE 3300	0.10%	.2-2.0%
REDI-EARTH	0.10%	.2-2.0%
METRO-MIX	0.10%	.2-2.0%

Per E.S. Wood, definitions above are termed "MINUTE".

100% VERMICULITE PRODUCTS	LIBBY	KEARNEY
MASONRY FILL (#4 size)	xx	xx
" " (#3 size)	xx	xx
ATTIC FILL (#1 size)	unknown	not applicable
" " (#2 size)	0.1%	not applicable
" " (#3 size)	0.1%	1-6%
ZONOLITE CONCRETE AGGREGATE (#4 size)	0.5%	1-6%
TERRA-LITE GROWER (#2 size)	0.1%	not applicable
" " CONSUMER (#3 size)	0.1%	1-6%
VERXITE (#4 size)	not applicable	below detectable lim
INDUSTRIAL (#1 size)	xx	not applicable
" (#2 size)	0.1%	not applicable
" (#3 size)	0.1%	1-6%
" (#4 size)	0.5%	1-6%

VERMICULITE CONCENTRATE	LIBBY	KEARNEY
Size #1	1.2	not applicable
Size #2	2.5	not applicable
Size #3	xx	1-6%
Size #4	xx	1-10%
4G	xx	xx
Size #5	xx	xx

** The 5% statement is suggested on the basis of microscopic examination of a single Kearney sample. The 5% figure is an estimate. If we intend to use t approach we would have to generate quantitative lab data by means of linear traverse.

xx - to be determined

2. AIRBORNE "ASBESTOS FIBER" STATEMENT:

1) Airborne fiber levels will not exceed OSHA standards in the intended end use.
2) The morphology of the tremolite content is predominantly platy (non-fibrous). Airborne fiber levels will not exceed OSHA standards in the intended end use.
3) Airborne release of the fibrous tremolite content is suppressed by a binder which is added in processing. Airborne fiber levels will not exceed OSHA standards in intended end use.
4) The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection.
5) The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" (less than 0.5% by weight) fraction. Normal industrial dust control practices should be followed.

RECOMMENDED FIBER STATEMENTS

	LIBBY	KEARNEY
MIXES		
MONOKOTE	1*	1
ZONOLITE 3300	1*	1
REDI-EARTH GROWER	1	1
METRO-MIX GROWER	1	1
100% VERMICULITE PRODUCTS		
MASONRY FILL (#4 size)	1	1
" " (#3 size)	1	1
ATTIC FILL (#1 size)	Consumer product (MSDS) not appropriate	
" " (#2 size)		
" " (#3 size)		
ZONOLITE CONCRETE AGGREGATE (#4 size)	1	1
TERRA-LITE GROWER (#2 size)	1	not applicable
TERRA-LITE CONSUMER (#3 size)	1	1
VERXITE	not applicable	below detectable li
INDUSTRIAL (#1 size)	MSDS for industrial end uses must be specifically tailored for the particular end use practice & must be developed on the basis of customer input	
" (#2 size)		
" (#3 size)		
" (#4 size)		
BULK AGRICULTURAL VERM. #4	5 (modified)	5 (modified)

VERMICULITE CONCENTRATE	LIBBY	KEARNEY
Size #1	4	not applicable
Size #2	4	not applicable
Size #3	4	5
Size #4	4	5
4G	4	5
Size #5	—	5

The information contained herein is based on knowledge believed to be reliable but W. R. GRACE & CO. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO THE ACCURACY OR ADEQUACY THEREOF. Nothing herein excuses the recipient hereof from such duties as shall be imposed by the Occupational Safety and Health Act of 1970 and regulations issued pursuant thereto.

* Blessington feels that these two products need further discussion & clarification.

2nd DRAFT

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

DATE:

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

E. S. Reed
J. W. Walter
B. R. Williams
W. R. Hanlon
O. M. Favorito

SECTION I

MANUFACTURER'S NAME: W. R. Grace & Co. - Construction Products Division	EMERGENCY TELEPHONE NO.: 617-876-1400 x 457
ADDRESS (Number, Street, City, State, and ZIP Code): 62 Whittemore Avenue, Cambridge, MA 02140	Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS: VERMICULITE CONCENTRATE (Non-expanded) #1 & #2	TRADE NAME AND SYNONYMS: Vermiculite Concentrate, Libby Mine
CHEMICAL FAMILY: Magnesium Aluminosilicate Mineral	FORMULA: (Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al)4(O)10(OH)2·H2O

SECTION II - HAZARDOUS INGREDIENTS

CT302519

Contains less than * % by weight of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* #1: 1.2 #2: 2.5

The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection.

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H_2O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT, VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____ =1)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark grey		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

(Continued on reverse side)

at the time this information was given.

Form OSHA-20
Rev. May 72

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SECTION V - HEALTH HAZARD DATA

0024329

THRESHOLD LIMIT VALUE
Airborne asbestos fiber 2f/cc T.W.A. - ceiling 10f/cc at one time
Dust respirable fraction 5 mgm/M^3. Total dust 15 mgm/M^3.

0236[illegible]20

EMERGENCY AND FIRST AID PROCEDURES NA

SECTION VI - REACTIVITY DATA NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		

INCOMPATABILITY (Materials to Avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Dampen slightly or use other techniques which control airborne fibers and dust within the TLV limits of Section V above.

WASTE DISPOSAL METHOD Use disposal techniques which control airborne fibers and dust within the TLV limits of Section V above. See OSHA Standard 1910.93A, Paragraph (h) (2) Waste Disposal

SECTION VIII - SPECIAL PROTECTION INFORMATION

See OSHA 1910.93A - Controls such as isolation enclosure, exhaust ventilation and dust collection shall be used to meet exposure limits. Also see OSHA Standard 1910.93A Personal Protective Equipment for dealing with work environments in excess of exposure limits.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
See OSHA standard 1910.1001

OTHER PRECAUTIONS

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

DATE: _____

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

E. S. Bond
J. W. Helter
B. R. Williams
W. R. Hanlon
O. M. Favorite

SECTION I

MANUFACTURER'S NAME: W. R. Grace & Co. - Construction Products Division	EMERGENCY TELEPHONE NO.: 617-876-1400 x 457
ADDRESS (Number, Street, City, State, and ZIP Code): 62 Whittemore Ave., Cambridge, MA 02140	Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS: VERMICULITE CONCENTRATE #3 & #4 & AC	TRADE NAME AND SYNONYMS: Vermiculite Concentrate - Kearney Mine
CHEMICAL FAMILY: Magnesium Aluminosilicate Mineral	FORMULA: $(Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al)_4(O)_{10}(OH)_2 \cdot H_2O$

SECTION II - HAZARDOUS INGREDIENTS

02302621

The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" ~~(less than 1% by weight)~~ fraction. Normal industrial dust control practices should be followed.

SECTION III - PHYSICAL DATA

BOILING POINT (°F)	NA	SPECIFIC GRAVITY (H_2O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT, VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____=1)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark grey		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

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PAGE (1)

(Continued on reverse side)

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SECTION V - HEALTH HAZARD DATA

02302522

THRESHOLD LIMIT VALUE
Dust respirable fraction 5mgm/M^3. Total dust 15mgm/M^3.

0524331

EMERGENCY AND FIRST AID PROCEDURES NA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		

INCOMPATABILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Dampen slightly or use other techniques which control airborne dust within the TLV limits of Section V above.

WASTE DISPOSAL METHOD Use disposal techniques which control airborne dust within the TLV limits of Section V above.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: If TLV is exceeded, use disposable respirator Type TC-21C-132; 3M #8710 or similar disposable or reusable respirator

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

DATE: _____

Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

E. F. Wood
062
J. F. Wolter
B. R. Williams
W. R. Hanlon
O. B. Favorito

SECTION I

MANUFACTURER'S NAME: W. R. Grace & Co. - Construction Products Division	EMERGENCY TELEPHONE NO.: 617-876-1400 x 457.
ADDRESS (Number, Street, City, State, and ZIP Code): 62 Whittemore Avenue, Cambridge, MA 02140	Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS: NOT APPLICABLE	TRADE NAME AND SYNONYMS: REDI-EARTH GROWER
CHEMICAL FAMILY: Peat Moss/Vermiculite Mixture	FORMULA: NOT APPLICABLE

SECTION II - HAZARDOUS INGREDIENTS

02302823

Expected end use procedures in the grower industry may create dusty conditions. Airborne fiber levels will not exceed OSHA standards in the intended end use.

What OSHA standard

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H_2O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT, VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____=1)	NA
SOLUBILITY IN WATER	NA	Bulk Density lbs/c.f.	8-10

APPEARANCE AND ODOR: Slightly moist brown colored free-flowing material

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

(Continued on reverse side)

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SECTION V - REACTIVITY DATA

THRESHOLD LIMIT VALUE
Nuisance dust TLV = 10mg/M^3; 5mg/M^3 respirable

0230[illegible]

EMERGENCY AND FIRST AID PROCEDURES NA

SECTION VI - REACTIVITY DATA NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES NOT APPLICABLE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WASTE DISPOSAL METHOD

SECTION VIII - SPECIAL PROTECTION INFORMATION NOT APPLICABLE

RESPIRATORY PROTECTION *(Specify type)*

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL *(General)*	OTHER

PROTECTIVE GLOVES	EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS NOT APPLICABLE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

Construction Products Division

GRACE

TO: E. S. Wood
J. W. Wolter
B. R. Williams
W. R. Hanlon
O. M. Favorito

DATE: April 5, 1977

FROM: R. C. Ericson

SUBJECT: MSDS for Vermiculite Concentrate & Finished Products

cc: W. F. McCord
H. C. Duecker
R. Locke
F. Eaton

With more data now available, I have drafted some proposed language for Material Safety Data Sheets. My view is that we should have an MSDS for each product in the line because this permits us to make more informative and precise statements.

The most difficult section to complete is Section II - HAZARDOUS INGREDIENTS. This will include (1) a tremolite statement and (2) an asbestos fibers statement. I am attaching proposals for a standard pattern to follow in this section with (17) distinct finished product classifications. Also attached are (3) examples of complete MSDS for Libby concentrate, Kearney concentrate, and Redi-Earth (an example of a mixed product).

I would expect that a group discussion of these proposals could permit us to develop a concensus draft so that we can respond to numerous pending requests. As a related postscript, I would like to offer my version of a "safety" statement: "We believe our product has an ((1) acceptable or (2) negligible or (3) almost non-existent) hazard at any forseeable exposure levels in its intended end use."

R. C. Ericson

R. C. Ericson

rce/lpj
Attachments

1. LIBBY TREMOLITE STATEMENT: Contains less than * % of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

KEARNEY TREMOLITE STATEMENT: Contains less than * % of a naturally occurring mixture of amphibole contaminants; Hornblend and tremolite. The predominant morphology of the contaminant is platy (non-fibrous). OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Less than 5%** of the contaminant is in a form which can fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

* % TREMOLITE TABLE BASED ON AVAILABLE CPD TREMOLITE TEST DATA

MIXES	LIBBY	KEARNEY
MONOKOTE	0.10%	.2-2.0%
ZONOLITE 3300	0.10%	.2-2.0%
REDI-EARTH	0.10%	.2-2.0%
METRO-MIX	0.10%	.2-2.0%

Per E.S. Wood, definitions above are termed "MINUTE".

100% VERMICULITE PRODUCTS	LIBBY	KEARNEY
MASONRY FILL (#4 size)	xx	xx
" " (#3 size)	xx	xx
ATTIC FILL (#1 size)	unknown	not applicable
" " (#2 size)	0.1%	not applicable
" " (#3 size)	0.1%	1-6%
ZONOLITE CONCRETE AGGREGATE (#4 size)	0.5%	1-6%
TERRA-LITE GROWER (#2 size)	0.1%	not applicable
" " CONSUMER (#3 size)	0.1%	1-6%
VERXITE (#4 size)	not applicable	below detectable limi
INDUSTRIAL (#1 size)	xx	not applicable
" (#2 size)	0.1%	not applicable
" (#3 size)	0.1%	1-6%
" (#4 size)	0.5%	1-6%

VERMICULITE CONCENTRATE	LIBBY	KEARNEY
Size #1	1.2	not applicable
Size #2	2.5	not applicable
Size #3	xx	1-6%
Size #4	xx	1-10%
4G	xx	xx
Size #5	xx	xx

** The 5% statement is suggested on the basis of microscopic examination of a single Kearney sample. The 5% figure is an estimate. If we intend to use this approach we would have to generate quantitative lab data by means of linear traverse.

2. AIRBORNE "ASBESTOS FIBER" STATEMENT:

1) Airborne fiber levels will not exceed OSHA standards in the intended end use.
2) The morphology of the tremolite content is predominantly platy (non-fibrous). Airborne fiber levels will not exceed OSHA standards in the intended end use.
3) Airborne release of the fibrous tremolite content is suppressed by a binder which is added in processing. Airborne fiber levels will not exceed OSHA standards in intended end use.
4) The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection. See W. R. Grace & Co. bulletin #_____ for recommended practices.
5) The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" fraction. Normal industrial dust control practices should be followed.

POSSIBLE FIBER STATEMENTS

MIXES	LIBBY	KEARNEY
MONOKOTE	1	1; 2
ZONOLITE 3300	1	1; 2
REDI-EARTH	1; 3	1; 2; 3
METRO-MIX	1; 3	1; 2; 3

100% VERMICULITE PRODUCTS	LIBBY	KEARNEY
MASONRY FILL (#4 size)	3	1; 2
" " (#3 size)	3	1; 2
ATTIC FILL (#1 size)	unknown	
" " (#2 size)	3	
" " (#3 size)	unknown	1; 2
ZONOLITE CONCRETE AGGREGATE (#4 size)	1	1; 2
TERRA-LITE GROWER (#2 size)	1; 3	
TERRA-LITE CONSUMER (#3 size)	1	1; 2
VERXITE INDUSTRIAL (#1 size)	3	
" " (#2 size)	3	
" " (#3 size)	3	1; 2
" " (#4 size)	3	1; 2

VERMICULITE CONCENTRATE	LIBBY	KEARNEY
Size #1	4	not applicable
Size #2	4	not applicable
Size #3	4	5
Size #4	4	5
4G	4	5
Size #5	—	5

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U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

DATE: _____

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

E. S. Reed
J. W. Holter
B. R. Williams
W. R. Hanlon
O. M. Favorito

SECTION I

MANUFACTURER'S NAME: W. R. Grace & Co. --Construction Products Division	EMERGENCY TELEPHONE NO.: 617-876-1400 x 457
ADDRESS (Number, Street, City, State, and ZIP Code): 62 Whittemore Avenue, Cambridge, MA 02140	Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS: VERMICULITE CONCENTRATE (Non-expanded) #1 & #2	TRADE NAME AND SYNONYMS: Vermiculite Concentrate - Libby Mine
CHEMICAL FAMILY: Magnesium Aluminosilicate Mineral	FORMULA: $(Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al)_4(O)_{10}(OH)_2 \cdot H_2O$

SECTION II - HAZARDOUS INGREDIENTS

1. TREMOLITE STATEMENT: Contains less than * % of a naturally occurring contaminant tremolite. OSHA Regulation 1910.93A defines tremolite as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc: 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

C2302525

* #1: 1.2 #2: 2.5

The normal physical handling given to vermiculite concentrate can create an airborne fiber level in excess of OSHA standards. Compliance with standards can be assured by various methods: enclosure, exhaust ventilation and dust collection. See W. R. Grace & Co. bulletin #_____ for recommended practices.

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H_2O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT, VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____ =1)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark grey		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

		Lel	Uel
FLASH POINT (Method used)	FLAMMABLE LIMITS		
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

(Continued on reverse side)

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SECTION V - HEALTH HAZARD DATA

0624338

THRESHOLD LIMIT VALUE
Airborne asbestos fiber 2f/cc T.W.A. - ceiling 10f/cc at one time

02302820

Dust respirable fraction 5 mgm/M^3. Total dust 15 mgm/M^3.

EMERGENCY AND FIRST AID PROCEDURES
NA

SECTION VI - REACTIVITY DATA NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		

INCOMPATABILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Dampen slightly or use other techniques which control airborne fibers and dust within the TLV limits of Section V above.

WASTE DISPOSAL METHOD Use disposal techniques which control airborne fibers and dust within the TLV limits of Section V above. See OSHA Standard 1910.93A, Paragraph (h) (2) Waste Disposal

SECTION VIII - SPECIAL PROTECTION INFORMATION

See OSHA 1910.93A - Controls such as isolation enclosure, exhaust ventilation and dust collection shall be used to meet exposure limits. Also see OSHA Standard 1910.93A Personal Protective Equipment for dealing with work environments in excess of exposure limits.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
See OSHA standard 1910.1001

OTHER PRECAUTIONS

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

DATE:

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

E. S. [illegible] 24339
J. W. [illegible]lter
B. R. [illegible]illiams
W. R. [illegible]anlon
O. M. [illegible]avorito

SECTION I

MANUFACTURER'S NAME: W. R. Grace & Co. - Construction Products Division	EMERGENCY TELEPHONE NO.: 617-876-1400 x 4[illegible]7
ADDRESS (Number, Street, City, State, and ZIP Code): 62 Whittemore Ave., Cambridge, MA 02140	Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS: VERMICULITE CONCENTRATE #3 & #4	TRADE NAME AND SYNONYMS: Vermiculite Concentrate - Kearney Mine
CHEMICAL FAMILY: Magnesium Aluminosilicate Mineral	FORMULA: (Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al)4(O)$_{10}$(OH)$_2$-H_2O

SECTION II - HAZARDOUS INGREDIENTS

KEARNEY TREMOLITE STATEMENT: Contains less than * % of a naturally occurring mixture of amphibole contaminants; Hornblend and tremolite. The predominant morphology of the contaminant is platy (non-fibrous). OSHA Regulation 1910.93A defines tremolite (fibrous form) as asbestos. Less than 5% of the contaminant is in a form which can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers. Regulation 1910.93A places a limit of 2 "asbestos fibers"/cc 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.

02302830

* #3: 1-6%; #4: 1-10%

The normal physical handling given to vermiculite concentrate can create a nuisance dust level in excess of OSHA standards. Due to the predominantly platy (non-fibrous) character of the tremolite contaminant, the dust has a negligible "asbestos fiber" fraction. Normal industrial dust control practices should be followed.

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H_2O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT, VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____ =1)	NA
SOLUBILITY IN WATER	Slight, if any	Bulk Density lbs/c.f.	45-65
APPEARANCE AND ODOR	Free flowing irregularly shaped flake - ranging in color from gold to dark grey.		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

(Continued on reverse side)

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THRESHOLD LIMIT VALUE
Dust respirable fraction 5mgm/M^3. Total dust 15mgm/M^3.

0230 1031

0624340

EMERGENCY AND FIRST AID PROCEDURES NA

SECTION VI - REACTIVITY DATA

NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Dampen slightly or use other techniques which control airborne dust within the TLV limits of Section V above.

WASTE DISPOSAL METHOD Use disposal techniques which control airborne dust within the TLV limits of Section V above.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection: If TLV is exceeded, use disposable respirator Type TC-21C-132; 3M #8710 or similar disposable or reusable respirator

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

DATE: _____

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

E. S. [illegible] 062434
J. W. Holter
B. R. Williams
W. R. Hanlon
O. M. Favorito

SECTION I

MANUFACTURER'S NAME: W. R. Grace & Co. - Construction Products Division	EMERGENCY TELEPHONE NO.: 617-876-1400 x 45[illegible]
ADDRESS (Number, Street, City, State, and ZIP Code): 62 Whittemore Avenue, Cambridge, MA 02140	Quality Assurance Manager
CHEMICAL NAME AND SYNONYMS: NOT APPLICABLE	TRADE NAME AND SYNONYMS: REDI-EARTH GROWER
CHEMICAL FAMILY: Peat Moss/Vermiculite Mixture	FORMULA: NOT APPLICABLE

SECTION II - HAZARDOUS INGREDIENTS 02102832

1. Contains less than 2.0% of a naturally occurring contaminant tremolite. The morphology of the tremolite content is predominantly platy (non-fibrous). Less than 5% of the contaminant (0.1%) is in a form which can be fibrillated by physical handling to release airborne "asbestos fibers" longer than 5 micrometers.
2. Airborne fiber levels will not exceed OSHA standards in the intended end use.
3. Airborne release of the fibrous tremolite content is suppressed by a binder which is added in processing. Airborne fiber levels will not exceed OSHA standards in intended end use.

NOTE: This section could include any of the following combinations:
1 & 2 or 1 & 3 (Kearney vermiculite only)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H_2O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT, VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____=1)	NA
SOLUBILITY IN WATER	NA	Bulk Density lbs/c.f.	8-10

APPEARANCE AND ODOR: Slightly moist brown colored free-flowing material

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE

FLASH POINT (Method used)	FLAMMABLE LIMITS	LEL	UEL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

Form OSHA-20
Rev. May 72

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SECTION V - HEALTH HAZARD DATA

0230 2833

THRESHOLD LIMIT VALUE
Nuisance dust TLV = 10mg/m^3; 5mg/M^3 respirable

0624342

EMERGENCY AND FIRST AID PROCEDURES NA

SECTION VI - REACTIVITY DATA NOT APPLICABLE

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE		

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES NOT APPLICABLE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WASTE DISPOSAL METHOD

SECTION VIII - SPECIAL PROTECTION INFORMATION NOT APPLICABLE

RESPIRATORY PROTECTION *(Specify type)*

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL *(General)*	OTHER

PROTECTIVE GLOVES	EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT

SECTION IX - SPECIAL PRECAUTIONS NOT APPLICABLE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

OTHER PRECAUTIONS

0624343 (23028314

CCM These comments del orally at file meeting 4-8-77

R. C. Ericson
CC - Word

Re. MSDS for Vermiculite Concentrate + Finished Products

I have reviewed the Draft Proposal for MSDS for vermiculite concentrate and finished products and have the following comments

(a) Reference to Regulation 1910.93 should be deleted. This was the designation given to the OSHA asbestos standard before it was recodified. The ~~designation~~ proper designation is to 1910.1001 and the reference should be used throughout.

~~I understand that~~

~~(b) [illegible] The [illegible] percent [illegible]~~

(b) I understand that the reason for ~~indicating~~ wanting to indicate the percent ~~[illegible]~~ by weight of tremolite content is to give the receipt ~~[illegible]~~ ~~[illegible]~~ the indication that he is not giving a product containing commercial asbestos and that the ~~[illegible]~~ ~~[illegible]~~ tremolite asbestos

0624344

However I think that this [illegible] initiative for (could be continued only) contaminant control so low.

02302835

[illegible] the exposure [illegible] to believe that because the present [illegible] control so low that the exposure of [illegible] fiber released is hardly the present [illegible] can be assumed to be less than that presented by the [illegible] standard. As you know, respirable [illegible] fiber are slight and sometimes may be present [illegible] the present by [illegible] is low. Accordingly I propose/recommend [illegible] said standard be deleted.

OSHA standard 1910.1001 regulates airborne fiber concentration and [illegible] should the [illegible]

[illegible] MSDS [illegible]

0624345

023028[illegible]

(C) I note that the asbestos [illegible] 1311-1001 is not mentioned [illegible] in the proposed MSDS data sheet for heavy ore. [illegible] Asbestos [illegible] [illegible] suggest that reference to the standard should be made to the standard since from time to time pockets of Tellico ore are received in South Carolina which has a [illegible] tremolite asbestos form content. Further your statement that "the dust has a negligible "asbestos fiber" (less than 0.5% by weight) fraction." [illegible] seems confusing. As indicated above a 0.5% tremolite asbestos fiber content [illegible] significant because [illegible] fibers are light. [illegible] the tremolite asbestos form mineral content of the heavy ore is less than 0.5% by weight would be more accurate [illegible]

(if I understand your data correctly) the fraction of the tremolite [illegible] content [illegible] could be as high as 1.0%. [illegible] asbestos to [illegible] of South Carolina ore

0624346

02302837

as I indicated above I ~~[illegible]~~ ~~[illegible]~~ do not recommend the inclusion of a statement relating to present content of transfer [illegible] manual.

(d) I suggest that H.A. Schroeder be added to CPD's MSDS review process.

O. M.F.