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Prepped by Keeia Richards

Document Number:

25) II-D-046

Docket Number:

A-99-30

II-D-046

A-99-30

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

DEC 22 1997

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Mr. Andrew F. Verba
Ludowici-Celadon, Incorporated
4757 Tile Plant Road
New Lexington, Ohio 43764

Dear Mr. Verba:

The U. S. Environmental Protection Agency (EPA) is responsible for implementing the Clean Air Act (Act), as amended in 1990 (1990 Amendments). In response to requirements under the Act, the EPA is compiling detailed information on sources and quantities of emissions and control techniques for hazardous air pollutants (HAP). This information will be used in developing national emission standards for hazardous air pollutants (NESHAP) under section 112 of the Act. The standards will apply to both existing and new clay ceramic products manufacturing facilities. I am sure that you can appreciate how important it is for the EPA to use the best information available to make the difficult decisions needed to implement this legislation. Without extensive effort to secure such information, we will be faced with basing critical decisions on inadequate data. This could lead to decisions which may unnecessarily increase the economic burden on industry.

To ensure that regulations which will affect the clay ceramic products manufacturing industry are based upon sound and current data, I am exercising authority granted under the Act to ask your help in securing the needed information. This letter requests information on your clay ceramic products manufacturing facility located in New Lexington, Ohio, and any other Ludowici-Celadon, Incorporated facilities that manufacture clay ceramic products.

Enclosures 1 and 2 are two separate questionnaires known as information collection requests (ICR's). Enclosure 1 was developed by the EPA and approved by the Office of Management and Budget (OMB) as a "generic" information request to be used across the board for many different industries and source categories. Enclosure 2 is a user friendly ICR developed for the clay ceramic products manufacturing industry by industry representatives working in conjunction with the Agency. The group developed this ICR to be more understandable than the generic ICR, and it puts the questionnaire into the terms and language of the clay ceramic products industry. It is designed to reduce the reporting burden on the industry in responding to the ICR, while obtaining the same basic information as in Enclosure 1. **You should complete either Enclosure 1 or Enclosure 2, not both.**

The EPA's authority to gather information is presented in section 114 of the Act (42 U.S.C. 7414). Enclosure 3 contains a summary of this authority. If you believe that disclosure of any specific information that you submit would reveal a trade secret, clearly identify

such specific information. Please do not label an entire response "Confidential" if only certain portions consist of trade secret information. Refer to Enclosure 3 for the information the EPA may require, at a later time, to support your confidentiality claims. Any information subsequently determined to constitute a trade secret will be protected under 18 U.S.C. 1905. If no claim of confidentiality accompanies the information when it is received by the EPA, it may be made available to the public by the EPA without further notice (40 CFR Part 2.203, September 1, 1976). Because section 114(c) of the Act exempts emission data from claims of confidentiality, the emission data you provide may be made available to the public. A clarification of what the EPA considers to be emission data is contained in Enclosure 4.

The EPA has contracted Midwest Research Institute (Contract No. 68-D6-0012) to obtain information pertinent to the industry. Thus, as noted in Enclosure 5, Midwest Research Institute has been designated by the EPA as an authorized representative of the Agency. Therefore, Midwest Research Institute has the rights discussed above. As a designated representative of the Agency, Midwest Research Institute is subject to the provisions of 42 U.S.C. 7414(c) respecting confidentiality of methods or processes entitled to protection as trade secrets.

Enclosure 6 summarizes the EPA and Emission Standards Division policies for handling privileged information and describes the EPA contractor commitments and procedures for using confidential materials. It is the EPA's policy that compliance by an authorized representative with the requirements detailed in Enclosure 6 provides sufficient protection for the rights of submitters of privileged information.

We request that you return the completed information request by March 4, 1998. If you have questions regarding this request, contact Mr. Bill Neuffer, Minerals and Inorganic Chemicals Group, at (919) 541-5435.

Sincerely,

Bruce C. Jordan

Bruce C. Jordan
Director
Emission Standards Division

6 Enclosures

cc: Robert Hodanbosi, Ohio Environmental Protection Agency
David Kee, Region V

Enclosure 1

Form Approved
OMB No. 2060-0239
Approval Expires: 08/31/98

Public reporting burden for this collection of information is estimated to average 85 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Chief, Information Policy Branch, U. S. Environmental Protection Agency (2136), 401 M Street, S.W., Washington, D.C. 20460, and to Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503. Include the OMB number in any correspondence.

MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (MACT) STANDARDS DEVELOPMENT INFORMATION REQUEST

I. Instructions

This information request is to be completed for operations that comprise the clay ceramic products manufacturing source category at your plant. The clay ceramic products source category includes any facility that manufactures clay ceramic products, including floor and wall tiles, dinnerware, sanitaryware, pottery, and other clay-based ceramic products.

We are requesting information regarding each compound identified as a hazardous air pollutant (HAP) that is used in or emitted by any operations, including fugitive emission sources, occurring from the clay ceramic products manufacturing source category at your facility. Fill out this information request as completely as possible from existing information. At a minimum, provide (1) information on the presence of HAP emissions and (2) HAP emission estimates based on previously obtained test data or on engineering calculations provided there is a basis for such calculations. No additional monitoring or emission testing is required by your company to respond to this request.

If you have any questions regarding this request, please contact Mr. Bill Neuffer. For your convenience, we have provided in Attachment A additional information on the scope and purpose of this survey. Respondents should read this material before attempting to complete the survey.

Return this information request and any additional information to:

Bruce C. Jordan, Director
Emission Standards Division (MD-13)
U. S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711
Attention: Bill Neuffer

II. General Information

A. Name of legal owner of plant: CERTAINTEED CORPORATION

B. Name of legal operator of plant, if different from legal owner:
SAME

C. Address of legal owner/operator (please specify which): 750 E. SWEDESFORD RD. P.O. BOX 860, VALLEY FORGE, PA. 19482

D. Size of company:

1. Approximate number of employees of the business enterprise that owns this plant, including where applicable, the parent company and all subsidiaries, branches, and unrelated establishments owned by the parent company (answer may be given using the following ranges: 0-100; 101-250; 251-500; 501-750; 751-1,000; 1,001-1,500; and (>1,500))

2. Number of plant employees attached to the clay ceramic products manufacturing operation:
120

E. Name of plant: LUDOWICI ROOF TILE, INC.

F. Street address of plant: 4757 TILE PLANT RD., NEW LEXINGTON, OH. 43764

G. Latitude and longitude coordinates of plant (see Appendix A of Attachment A):
LAT: 39° 42 MIN. 45 SEC ; LONG: 82 DEG, 14 MIN, 30 SECS.

H. Name of contact(s) able to answer technical questions about the completed survey:
BRAD SMITH

I. Title(s): PLANT ENGINEER

J. Telephone Number: (740) 342 1995

III. Plant Operations

A. Complete Table 1 for the most recent calendar year (unless the respondent can justify selection of an alternate base year) for all processes at your plant that are covered by the clay ceramic products manufacturing source category. For each type of process (i.e., process line), provide a process flow diagram that includes all sources of air emissions (e.g., stack emissions, process fugitive emissions, and area fugitive emissions [including fugitive dust emissions]). Also include all activities that generate HAP emissions, including the storage, transfer, handling, and processing of the materials, and wastewater and solid waste handling. Indicate all feedstocks, products, and emissions that contain compounds that are listed in Table 2, below. Use the same terminology/codes in identifying unit operations and emissions points in this figure as you will use in completing Table 3, below.

✓B. List the products, coproducts, and by-products identified in the process flow diagram and indicate for each how much is produced annually.

SEE ATTACHED LIST

IV. HAP's--Usage and Emissions

✓A. Complete Table 2 for each emission point identified in the process flow diagram(s) developed for Part III.A., above. For each HAP listed on the table, indicate the likelihood, using the codes defined in Table 2, that the HAP is emitted from a given emission point within the source category. Identify the appropriate emission points using the same terminology/codes you used in completing the process flow diagram(s) in Part III.A, above.

B. Using copies of Tables 3A and 3B, complete the table for each process and emission point identified in Part III, with the following exceptions.

1. For those emission points from units with Resource Conservation and Recovery Act (RCRA) Part B permits, it is not necessary to complete Table 3 for wastewater and solid waste handling operations;

2. Sources with no air pollution capture or control systems will only complete columns 1-3, 8, and 10 of Table 3-A; and

3. Provide HAP data only for those HAP's identified with code "A" in Table 2, above.

C. Complete Table 4 for any air pollution capture or control equipment identified in Table 3, above.

D. For calculations based on emission factors, material balances, or engineering principles, submit a step-by-step description of the calculations, including assumptions used, and a brief rationale for the validity of the calculation method used. (See guidance documents listed in Attachment A, Section IV). If test reports are listed as the basis for emissions estimates or capture system and control device efficiencies, provide a brief summary of the relevant tests. Include information such as the purpose of the test, when it was conducted, what test methods were used, and information on the process operation during the test. It is not necessary to submit copies of actual test reports at this time although EPA may request additional documentation on a plant-specific basis in the future.

V. Factors That Affect HAP Emission Reductions

Completion of this Section V is optional. If you choose to respond, clearly distinguish between pollution reduction and source reduction measures. Pollution reduction measures alter the physical, chemical, or biological characteristics or the volume of a HAP through a process or activity which itself is not integral to and necessary to produce a product or provide a service. The use of "add-on" devices to capture and control (recover or destroy) HAP emissions are considered pollution reduction measures. In contrast, source reduction measures reduce the amount of any HAP prior to recycling, treatment, or disposal. Source reduction measures include equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

A. For each unit operation for which pollution reduction or source reduction measures have resulted in a decrease in HAP emissions since 1987, provide the following information.

1. Name of unit operation: _____

2. Type of control or description of process change:

_____

_____

B. If recovery or recycling of feedstocks is used, quantify the effect of the program (e.g., estimated annual purchase of feedstock in the absence of recovery/recycling compared to actual annual purchase):

_____

_____

C. Are you aware of any alternative processes (feedstock substitutions or eliminations) or control devices that could result in fewer impacts between environmental media (water, air, and land) or reduced total release to all environmental media (e.g., reduced wastewater or solid waste)? Discuss whether these processes could be adapted to the clay ceramic products manufacturing source category and any experience you have with them.

VI. Miscellaneous

A. If any control or process change described in Part V was instituted as a result of new source review requirements pursuant to 40 CFR 51.160, Subpart I, Review of New Sources and Modifications, provide the date at which the lowest achievable emission rate (LAER) came into effect:

B. Describe any factors not addressed in the above questions that might serve to distinguish your facility from others in this source category for purposes of developing a separate source category or subcategory and MACT standards.

CLAY ROOF TILE OPERATION VS BRICK STANDARDS. ROOF TILES HAVE MUCH GREATER SURFACE AREA/UNIT WT. & THEREFORE THE ACTUALS (TESTS) ARE HIGHER (SLIGHTLY) THAN BRICK OR PIPE STANDARDS.

TABLE 1. SUMMARY OF PROCESS LINES FOR CLAY CERAMIC PRODUCTS MANUFACTURING SOURCE CATEGORY

Process lines using and/or emitting HAP's	No. of lines	Average annual production, pounds per year[a]	Operating cycle		Maximum annual production capacity, lb/yr	Age of process line(s), years	Remaining economic life of process line(s), years
			hr/d	d/yr			

[a]Provide production in appropriate units, e.g., ft^2/yr.

#1 COKE KILN

TABLE 2. PRESENCE OF HAZARDOUS AIR POLLUTANTS IN EMISSION POINTS[a]

Process name (as defined on process flow diagram): COKE KILN #1														
	EMISSION POINTS													
HEXAMETHYLENE-1,6-DIISO- CYANATE														
HEXAMETHYLPHOSPHORAMIDE														
HEXANE														
HYDRAZINE														
HYDROCHLORIC ACID														
HYDROGEN FLUORIDE (HYDROFLUORIC ACID)	A													
HYDROGEN SULFIDE														
HYDROQUINONE														
ISOPHORONE														
LINDANE (ALL ISOMERS)														
MALEIC ANHYDRIDE														
METHANOL														
METHOXYCHLOR														
METHYL BROMIDE (BROMOMETHANE)														
METHYL CHLORIDE (CHLOROMETHANE)														
METHYL CHLOROFORM (1,1,1-TRICHLOROETHANE)														
METHYL ETHYL KETONE (2-BUTANONE)														
METHYL HYDRAZINE														
METHYL IODIDE (IODOMETHANE)														
METHYL ISOBUTYL KETONE (HEXONE)														
METHYL ISOCYANATE														
METHYL METHACRYLATE														

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[a]For each HAP emission point defined in the process flow diagram, write in the applicable letter code defined below:

A - Specific HAP is known to be emitted.
B - Specific HAP is known not to be emitted.
C - No reason or data to assume that this HAP is emitted.

All blank cells assumed to be "C's."

#2 SHUTTLE KILN

TABLE 2. PRESENCE OF HAZARDOUS AIR POLLUTANTS IN EMISSION POINTS*

Process name (as defined on process flow diagram): SHUTTLE KILN

	EMISSION POINTS												
	#1												
HEXAMETHYLENE-1,6-DIISO- CYANATE													
HEXAMETHYLPHOSPHORAMIDE													
HEXANE													
HYDRAZINE													
HYDROCHLORIC ACID													
HYDROGEN FLUORIDE (HYDROFLUORIC ACID)	A												
HYDROGEN SULFIDE													
HYDROQUINONE													
ISOPHORONE													
LINDANE (ALL ISOMERS)													
MALEIC ANHYDRIDE													
METHANOL													
METHOXYCHLOR													
METHYL BROMIDE (BROMOMETHANE)													
METHYL CHLORIDE (CHLOROMETHANE)													
METHYL CHLOROFORM (1,1,1-TRICHLOROETHANE)													
METHYL ETHYL KETONE (2-BUTANONE)													
METHYL HYDRAZINE													
METHYL IODIDE (IODOMETHANE)													
METHYL ISOBUTYL KETONE (HEXONE)													
METHYL ISOCYANATE													
METHYL METHACRYLATE													

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*For each HAP emission point defined in the process flow diagram, write in the applicable letter code defined below:

A - Specific HAP is known to be emitted.
B - Specific HAP is known not to be emitted.
C - No reason or data to assume that this HAP is emitted.

All blank cells assumed to be "C's."

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#3 ENVELOPE KILN

TABLE 2. PRESENCE OF HAZARDOUS AIR POLLUTANTS IN EMISSION POINTS*

Process name (as defined on process flow diagram): ENVELOPE KILN														
	#1	EMISSION POINTS												
HEXAMETHYLENE-1,6-DIISO- CYANATE														
HEXAMETHYLPHOSPHORAMIDE														
HEXANE														
HYDRAZINE														
HYDROCHLORIC ACID														
HYDROGEN FLUORIDE (HYDROFLUORIC ACID)	A													
HYDROGEN SULFIDE														
HYDROQUINONE														
ISOPHORONE														
LINDANE (ALL ISOMERS)														
MALEIC ANHYDRIDE														
METHANOL														
METHOXYCHLOR														
METHYL BROMIDE (BROMOMETHANE)														
METHYL CHLORIDE (CHLOROMETHANE)														
METHYL CHLOROFORM (1,1,1-TRICHLOROETHANE)														
METHYL ETHYL KETONE (2-BUTANONE)														
METHYL HYDRAZINE														
METHYL IODIDE (IODOMETHANE)														
METHYL ISOBUTYL KETONE (HEXONE)														
METHYL ISOCYANATE														
METHYL METHACRYLATE														

*For each HAP emission point defined in the process flow diagram, write in the applicable letter code defined below:

A - Specific HAP is known to be emitted.
B - Specific HAP is known not to be emitted.
C - No reason or data to assume that this HAP is emitted.

All blank cells assumed to be "C's."

#4 GLAZE BOOTHS

TABLE 2. PRESENCE OF HAZARDOUS AIR POLLUTANTS IN EMISSION POINTS[a]

Process name (as defined on process flow diagram): GLAZE BOOTHS

CHEMICAL NAME	EMISSION POINTS												
	#1	#2	#3	#4	#5	#6	#7	#8					
ACETALDEHYDE													
ACETAMIDE													
ACETONITRILE													
ACETOPHENONE													
2-ACETYLAMINOFLUORENE													
ACROLEIN													
ACRYLAMIDE													
ACRYLIC ACID													
ACRYLONITRILE													
ALLYL CHLORIDE													
4-AMINOBIPHENYL													
ANILINE													
o-ANISIDINE													
ASBESTOS													
BENZENE(INCLUDING BENZENE FROM GASOLINE)													
BENZIDINE													
BENZOTRICHLORIDE													
BENZYL CHLORIDE													
BIPHENYL													
BIS(2-ETHYLHEXYL)PHTHALATE (DEHP)													
BIS(CHLOROMETHYL)ETHER													
BROMOFORM													

7

[a]For each HAP emission point defined in the process flow diagram, write in the applicable letter code defined below:

A - Specific HAP is known to be emitted.
B - Specific HAP is known not to be emitted.
C - No reason or data to assume that this HAP is emitted.

All blank cells assumed to be "C's."

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#21 GLAZE BOOTHS (8)

TABLE 2. PRESENCE OF HAZARDOUS AIR POLLUTANTS IN EMISSION POINTS[a]

Process name (as defined on process flow diagram): GLAZE BOOTHS (8)													
	EMISSION POINTS												
2,4,5-TRICHLOROPHENOL													
2,4,6-TRICHLOROPHENOL													
TRIETHYLAMINE													
TRIFLURALIN													
2,2,4-TRIMETHYLPENTANE													
VINYL ACETATE													
VINYL BROMIDE													
VINYL CHLORIDE													
VINYLIDENE CHLORIDE (1,1-DICHLOROETHYLENE)													
XYLENES (ISOMERS AND MIXTURE)													
o-XYLENES													
m-XYLENES													
p-XYLENES													
ANTIMONY COMPOUNDS													
ARSENIC COMPOUNDS (INORGANIC INCLUDING ARSINE)													
BERYLLIUM COMPOUNDS													
CADMIUM COMPOUNDS													
CHROMIUM COMPOUNDS	A	A	A	A	A	A	A	A					
COBALT COMPOUNDS	A	A	A	A	A	A	A	A					
COKE OVEN EMISSIONS													
CYANIDE COMPOUNDS													
GLYCOL ETHERS													
LEAD COMPOUNDS													

[a]For each HAP emission point defined in the process flow diagram, write in the applicable letter code defined below:

A - Specific HAP is known to be emitted.
B - Specific HAP is known not to be emitted.
C - No reason or data to assume that this HAP is emitted.

All blank cells assumed to be "C's."

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#4 GLAZE BOOTHS (8)

TABLE 2. PRESENCE OF HAZARDOUS AIR POLLUTANTS IN EMISSION POINTS*

Process name (as defined on process flow diagram): GLAZE BOOTHS (8)													
	EMISSION POINTS												
MANGANESE COMPOUNDS	A	A	A	A	A	A	A	A					
MERCURY COMPOUNDS													
FINE MINERAL FIBERS													
NICKEL COMPOUNDS	A	A	A	A	A	A	A	A					
POLYCYCLIC ORGANIC MATTER													
RADIONUCLIDES (INCLUDING RADON)													
SELENIUM COMPOUNDS													

*For each HAP emission point defined in the process flow diagram, write in the applicable letter code defined below:

A - Specific HAP is known to be emitted.
B - Specific HAP is known not to be emitted.
C - No reason or data to assume that this HAP is emitted.

All blank cells assumed to be "C's."

#7 WARE DRYERS (7)

TABLE 2. PRESENCE OF HAZARDOUS AIR POLLUTANTS IN EMISSION POINTS*

Process name (as defined on process flow diagram): WARE DRYERS

CHEMICAL NAME	EMISSION POINTS												
	#1	#2	#3	#4	#5	#6	#7						
ACETALDEHYDE													
ACETAMIDE													
ACETONITRILE													
ACETOPHENONE													
2-ACETYLAMINOFLUORENE													
ACROLEIN													
ACRYLAMIDE													
ACRYLIC ACID													
ACRYLONITRILE													
ALLYL CHLORIDE													
4-AMINOBIPHENYL													
ANILINE													
o-ANISIDINE													
ASBESTOS													
BENZENE(INCLUDING BENZENE FROM GASOLINE)	A	A	A	A	A	A	A						
BENZIDINE													
BENZOTRICHLORIDE													
BENZYL CHLORIDE													
BIPHENYL													
BIS(2-ETHYLHEXYL)PHTHALATE (DEHP)													
BIS(CHLOROMETHYL)ETHER													
BROMOFORM													

7

*For each HAP emission point defined in the process flow diagram, write in the applicable letter code defined below:

A - Specific HAP is known to be emitted.
B - Specific HAP is known not to be emitted.
C - No reason or data to assume that this HAP is emitted.

All blank cells assumed to be "C's."

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TABLE 3-A. INFORMATION ON HAZARDOUS AIR POLLUTANTS-- PREAIR POLLUTION CONTROL DEVICE STREAMS

Process line: ENVELOPE/SHUTTLE KILN

1	2	3	4	5	6	7	8	9	10
Unit operation	Type of equipment/ emission points	Name of HAP	Capture system/ device	Capture efficiency, percent	Basis for reported efficiency[a]	HAP concentrations in captured stream, ppmv	Vent stream composition, volume percent	Flow rate of captured stream, scfm	Uncontrolled HAP emissions, tons/yr[b,c]
ENVELOPE/SHUTTLE	KILN EXH	HF	NONE				UNKNOWN	UNKNOWN	0 D

[a]Provide copies of estimation worksheets and any other relevant documentation.
[b]Provide speciated data.
[c]Emissions not captured plus those in the uncontrolled capture stream.

D UNIT DID NOT OPERATE IN 1997

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TABLE 3-A. INFORMATION ON HAZARDOUS AIR POLLUTANTS--PREAIR POLLUTION CONTROL DEVICE STREAMS

Process line: _____

1	2	3	4	5	6	7	8	9	10
Unit operation	Type of equipment/ emission points	Name of HAP	Capture system/ device	Capture efficiency, percent	Basis for reported efficiency[a]	HAP concentrations in captured stream, ppmv	Vent stream composition, volume percent	Flow rate of captured stream, scfm	Uncontrolled HAP emissions, tons/yr[b,c]

[a]Provide copies of estimation worksheets and any other relevant documentation.
[b]Provide speciated data.
[c]Emissions not captured plus those in the uncontrolled capture stream.

TABLE 3-A. INFORMATION ON HAZARDOUS AIR POLLUTANTS-- PREAIR POLLUTION CONTROL DEVICE STREAMS

Process line: WARE DRYERS (7)

1	2	3	4	5	6	7	8	9	10
Unit operation	Type of equipment/ emission points	Name of HAP	Capture system/ device	Capture efficiency, percent	Basis for reported efficiency[a]	HAP concentrations in captured stream, ppmv	Vent stream composition, volume percent	Flow rate of captured stream, scfm	Uncontrolled HAP emissions, tons/yr[b,c]
WARE DRYERS	NATURAL GAS DRYER	BENZENE	NONE				UNKNOWN		.0015 D

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[a]Provide copies of estimation worksheets and any other relevant documentation.
[b]Provide speciated data.
[c]Emissions not captured plus those in the uncontrolled capture stream.

D DERIVED FROM NATURAL GAS COMBUSTION

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TABLE 3-A. INFORMATION ON HAZARDOUS AIR POLLUTANTS-PREAIR POLLUTION CONTROL DEVICE STREAMS

Process line: _____

1	2	3	4	5	6	7	8	9	10
Unit operation	Type of equipment/ emission points	Name of HAP	Capture system/ device	Capture efficiency, percent	Basis for reported efficiency[a]	HAP concentrations in captured stream, ppmv	Vent stream composition, volume percent	Flow rate of captured stream, scfm	Uncontrolled HAP emissions, tons/yr[b,c]

[a]Provide copies of estimation worksheets and any other relevant documentation.
[b]Provide speciated data.
[c]Emissions not captured plus those in the uncontrolled capture stream.

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TABLE 3-A. INFORMATION ON HAZARDOUS AIR POLLUTANTS-PREAIR POLLUTION CONTROL DEVICE STREAMS

Process line: _____

1	2	3	4	5	6	7	8	9	10
Unit operation	Type of equipment/ emission points	Name of HAP	Capture system/ device	Capture efficiency, percent	Basis for reported efficiency[a]	HAP concentrations in captured stream, ppmv	Vent stream composition, volume percent	Flow rate of captured stream, scfm	Uncontrolled HAP emissions, tons/yr[b,c]

[a]Provide copies of estimation worksheets and any other relevant documentation.
[b]Provide speciated data.
[c]Emissions not captured plus those in the uncontrolled capture stream.

16

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TABLE 3-B. INFORMATION ON HAZARDOUS AIR POLLUTANTS--CONTROLLED STREAMS

Unit operation	Type of equipment/ emission points	Name of HAP	Control device/method	Control efficiency, percent	Basis for reported efficiency[a]	Control device outlet stream composition, volume percent[b]	Control device outlet stream HAP emissions tons/yr[b,c]

[a]Provide copies of estimation worksheets and other relevant documentation.
[b]Include composition information for HAP's that are generated by the control device, if applicable.
[c]Provide speciated data.

TABLE 3-A. INFORMATION ON HAZARDOUS AIR POLLUTANTS-- PREAIR POLLUTION CONTROL DEVICE STREAMS

Process line: _____

1	2	3	4	5	6	7	8	9	10
Unit operation	Type of equipment/ emission points	Name of HAP	Capture system/ device	Capture efficiency, percent	Basis for reported efficiency[a]	HAP concentrations in captured stream, ppmv	Vent stream composition, volume percent	Flow rate of captured stream, scfm	Uncontrolled HAP emissions, tons/yr[b,c]

[a]Provide copies of estimation worksheets and any other relevant documentation.
[b]Provide speciated data.
[c]Emissions not captured plus those in the uncontrolled capture stream.

TABLE 3-B. INFORMATION ON HAZARDOUS AIR POLLUTANTS--CONTROLLED STREAMS

Unit operation	Type of equipment/ emission points	Name of HAP	Control device/method	Control efficiency, percent	Basis for reported efficiency[a]	Control device outlet stream composition, volume percent[b]	Control device outlet stream HAP emissions tons/yr[b,c]

[a]Provide copies of estimation worksheets and other relevant documentation.
[b]Include composition information for HAP's that are generated by the control device, if applicable.
[c]Provide speciated data.

TABLE 4. AIR POLLUTION CAPTURE SYSTEM AND CONTROL EQUIPMENT PARAMETERS[a]

CAPTURE SYSTEMS	EMISSION POINT __	EMISSION POINT __	EMISSION POINT __
GENERAL OR BUILDING VENTILATION			
Ventilation system used: Natural with gravity ventilator Roof fans Other (specify)			
Airflow control system: Drop curtain baffling Other (describe)			
Number of air changes per hour			
UNIT OR LOCAL VENTILATION			
Enclosure or hood design: Complete enclosure Closed hood Canopy hood Slot hood Suspended hood Other (describe)			
Volume of enclosure or canopy hood Capture velocity (if applicable), ft/sec Distance between hood and emission source, ft			

[a]The systems presented in this table are examples. This table will be customized to include parameters for those control and capture systems that are applicable to the source category in question.

[b]Indicate whether information provided represents design values, average operating values, or some other values.

TABLE 4. AIR POLLUTION CAPTURE SYSTEM AND CONTROL EQUIPMENT PARAMETERS

CONTROL DEVICE: SCRUBBER	EMISSION POINT	EMISSION POINT	EMISSION POINT
Type of scrubber: venturi packed bed impingement other (specify)			
Gas inlet temperature, °F			
Pressure drop, in H_2O			
Liquid-to-gas ratio, gal/10^3 acfm			
Inlet scrubbing liquor pH percent solids type of alkali added, if any rate (lbs/gal)			
Wastewater generation rate, gal/min HAP composition of wastewater, mg/ℓ			

CONTROL DEVICE: HEAT EXCHANGER	EMISSION POINT	EMISSION POINT	EMISSION POINT
Inlet temperature, °F			
Outlet temperature, °F			

TABLE 4. AIR POLLUTION CAPTURE SYSTEM AND CONTROL EQUIPMENT PARAMETERS

CONTROL DEVICE: BAGHOUSE	EMISSION POINT __	EMISSION POINT __	EMISSION POINT __
Gas inlet temperature, °F			
Bag material, weight, and coating			
Cleaning method and frequency			
Air to cloth ratio, acfm/ft^2			
Pressure drop across baghouse, in. H_2O			
Stack opacity			

CONTROL DEVICE: ELECTROSTATIC PRECIPITATOR	EMISSION POINT __	EMISSION POINT __	EMISSION POINT __
Gas inlet temperature, °F			
Particle resistivity, ohm-centimeter			
Specific collection area, ft^2/1,000 afcm			
Conditioning agents used (sulfur trioxide, sodium compounds, etc.)			
Stack opacity			

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TABLE 4. AIR POLLUTION CAPTURE SYSTEM AND CONTROL EQUIPMENT PARAMETERS

CONTROL DEVICE: INCINERATION	EMISSION POINT __	EMISSION POINT __	EMISSION POINT __
Type: thermal catalytic			
Combustion chamber temperature, °F (please note if temperature measurement is not in chamber)			
Excess air, %			
Nominal residence time, s			
Heat recovery: recuperative, percent heat recovery regenerative, percent heat recovery			

CONTROL DEVICE: FLARE	EMISSION POINT __	EMISSION POINT __	EMISSION POINT __
Type of flare: no assist steam assist air assist pressure assist			
Location: ground elevated			
Heat content of vented stream, BTU/scf			
Flare gas exit velocity, ft/s			
Flare tip diameter, in.			
Flare height, ft			
Supplementary fuel for pilot, scfm combustion purposes, scfm			
Steam requirement, lb/hr			

TABLE 4. AIR POLLUTION CAPTURE SYSTEM AND CONTROL EQUIPMENT PARAMETERS

CONTROL DEVICE: CARBON ADSORPTION	EMISSION POINT __	EMISSION POINT __	EMISSION POINT __
Type of carbon bed and number: fixed fluidized			
How many pounds of carbon per bed:			
Configuration: parallel serial			
Number of beds on-line			
Number of beds desorbing			
Pressure drop, in. H_2O			
Gas inlet temperature, °F			
Type of regeneration			
Regeneration time			
Adsorption time			

CONTROL DEVICE: CONDENSER	EMISSION POINT __	EMISSION POINT __	EMISSION POINT __
Type of condenser: surface contact [if contact, see scrubber]			
Gas inlet temperature, °F			
Gas outlet temperature, °F			

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--- PRODUCTION DATA ---

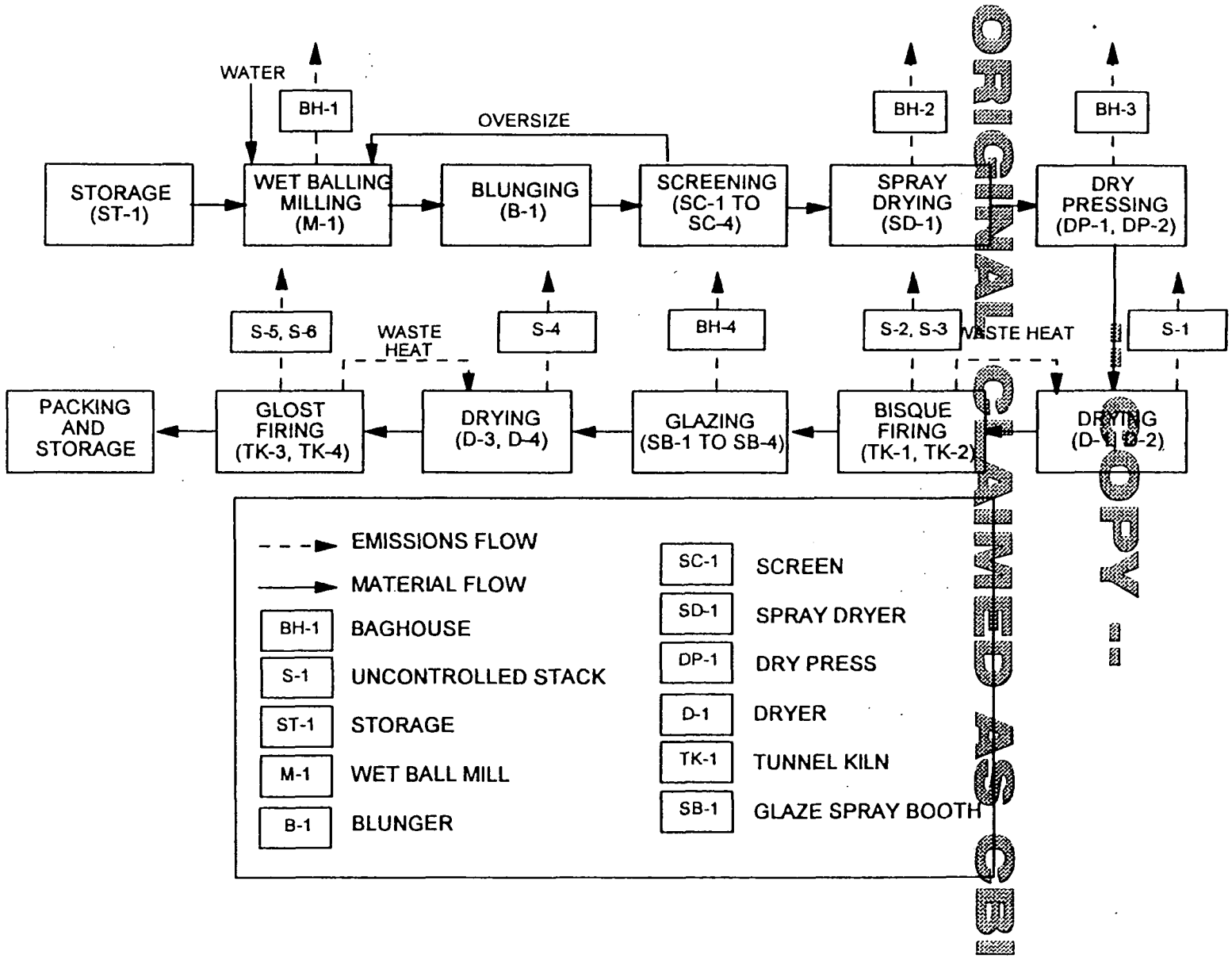
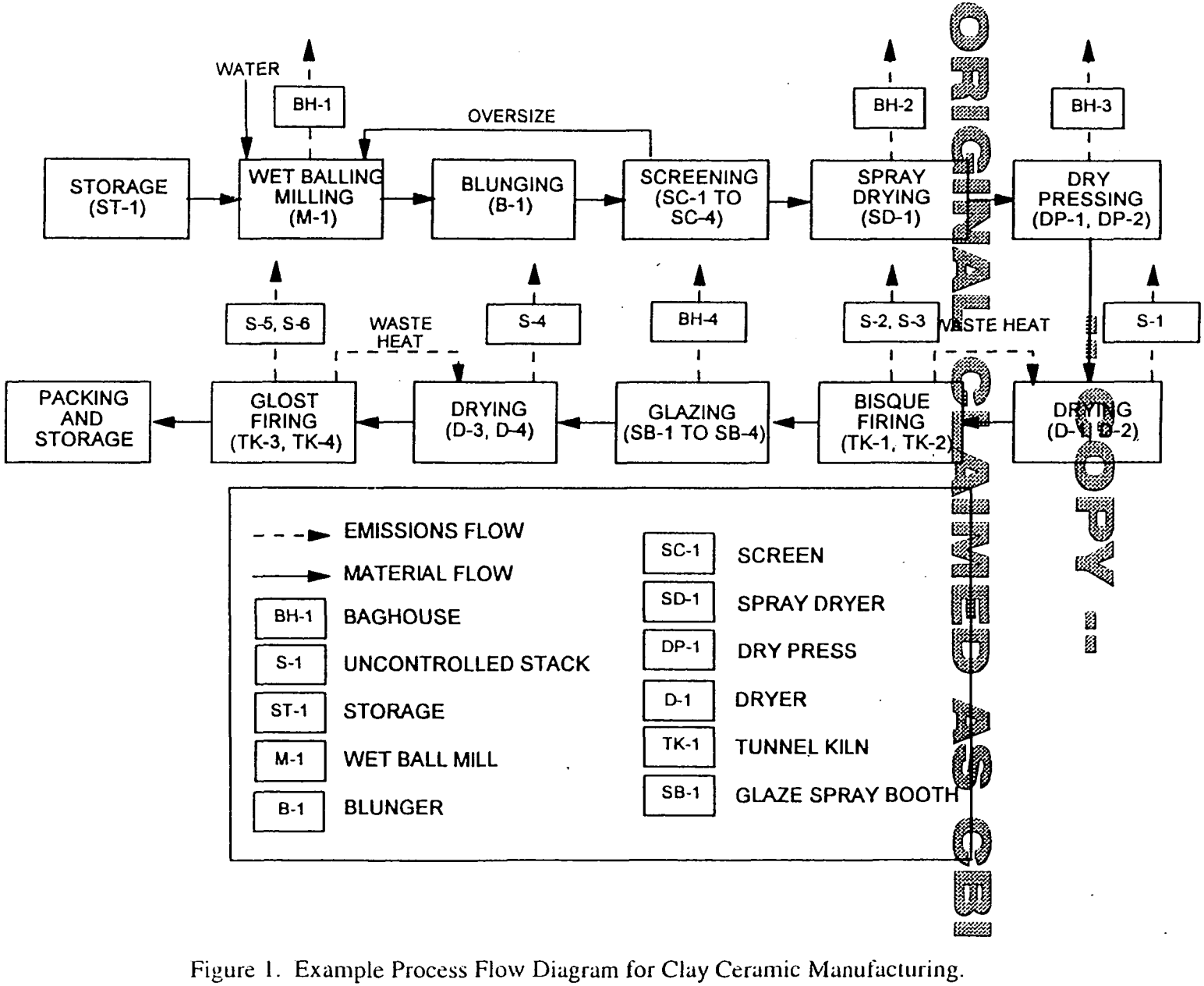


Figure 1. Example Process Flow Diagram for Clay Ceramic Manufacturing.



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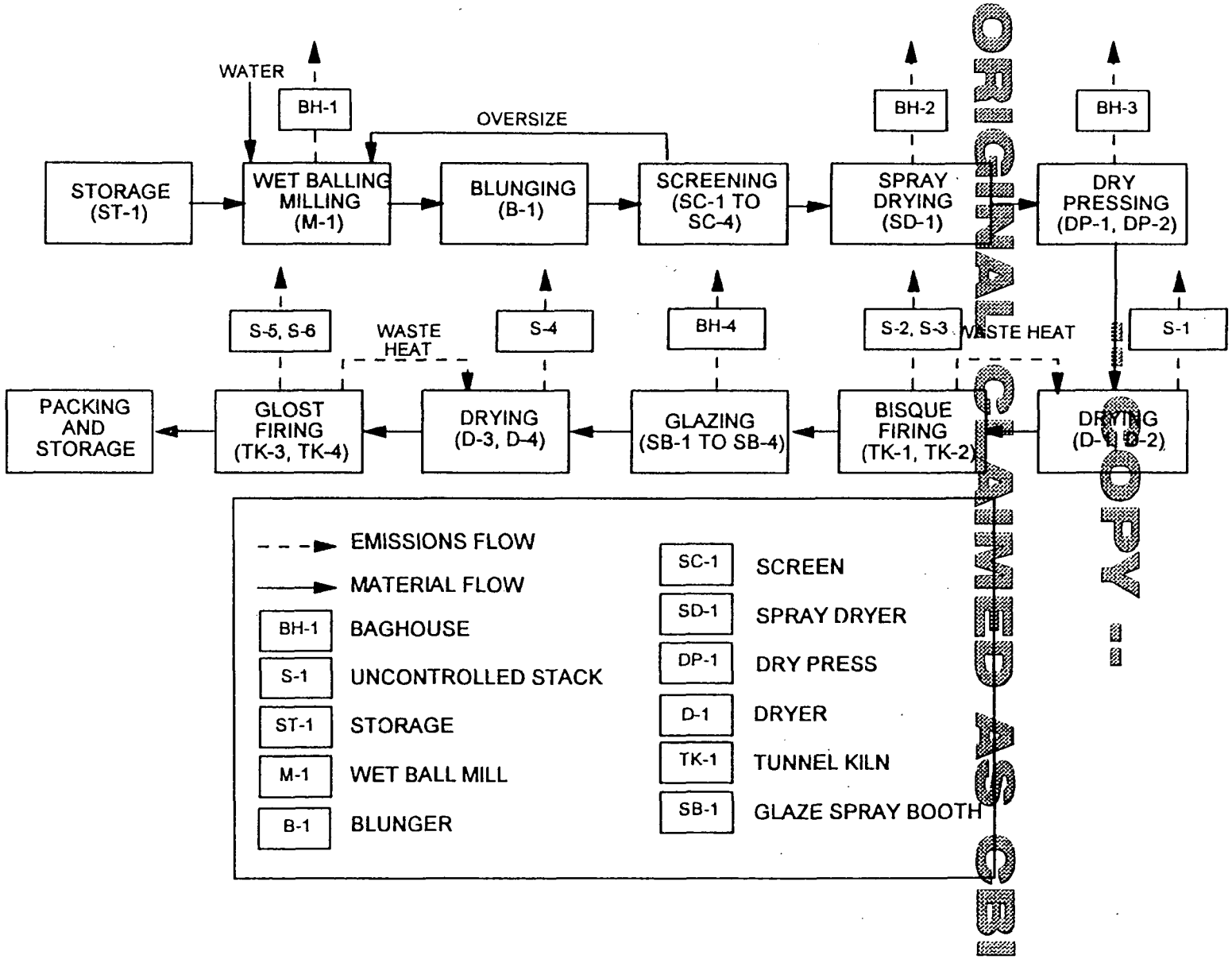

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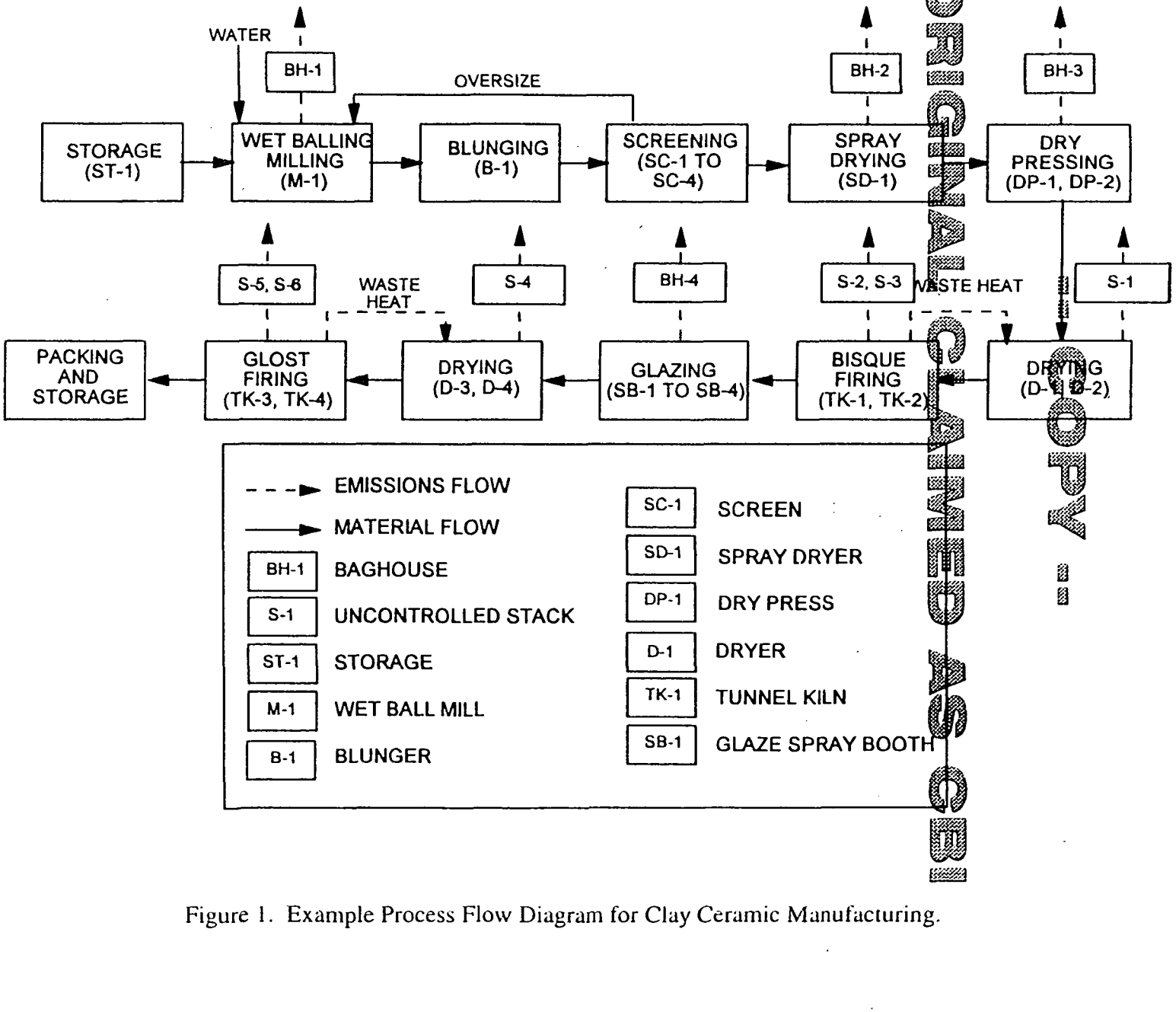

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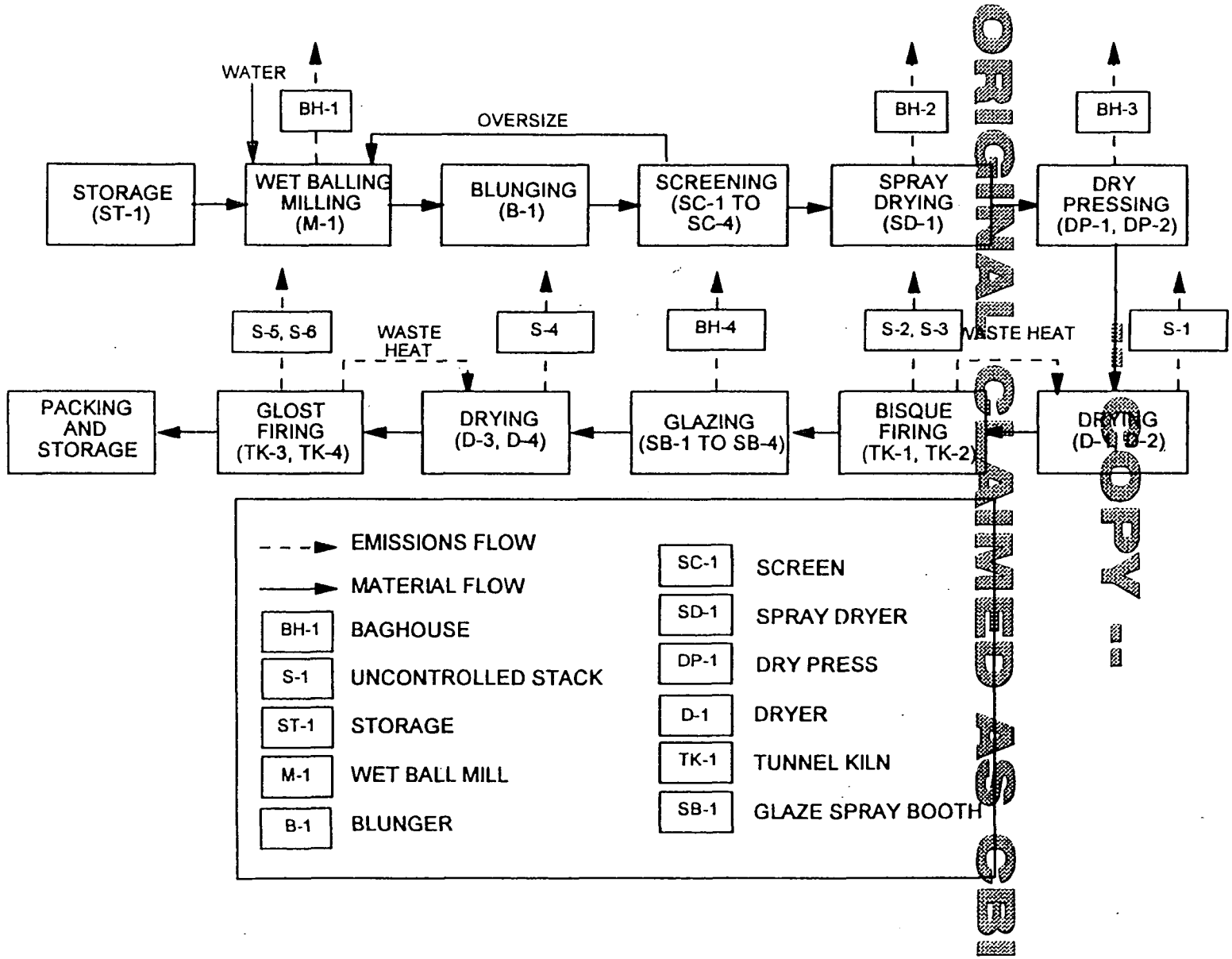

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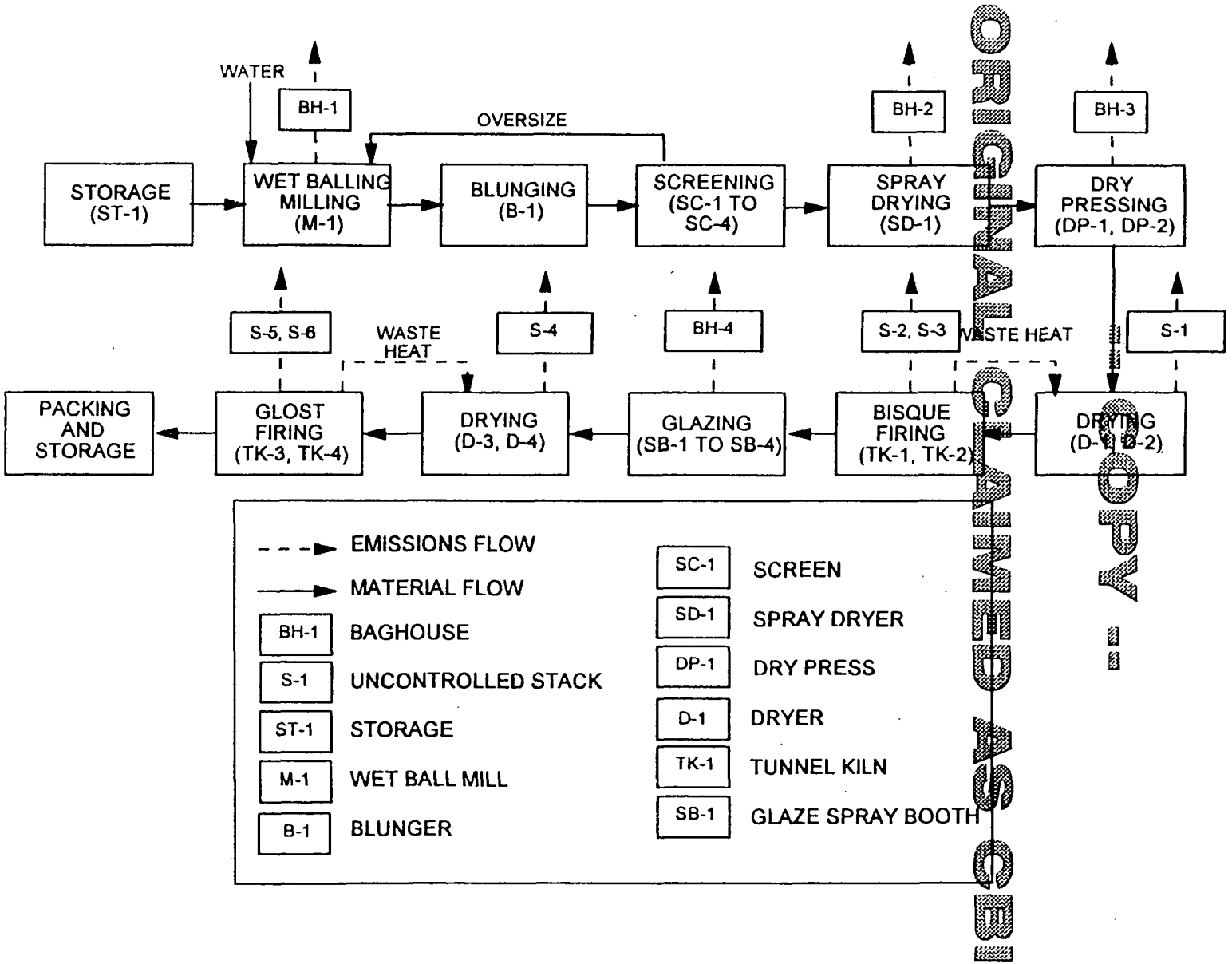

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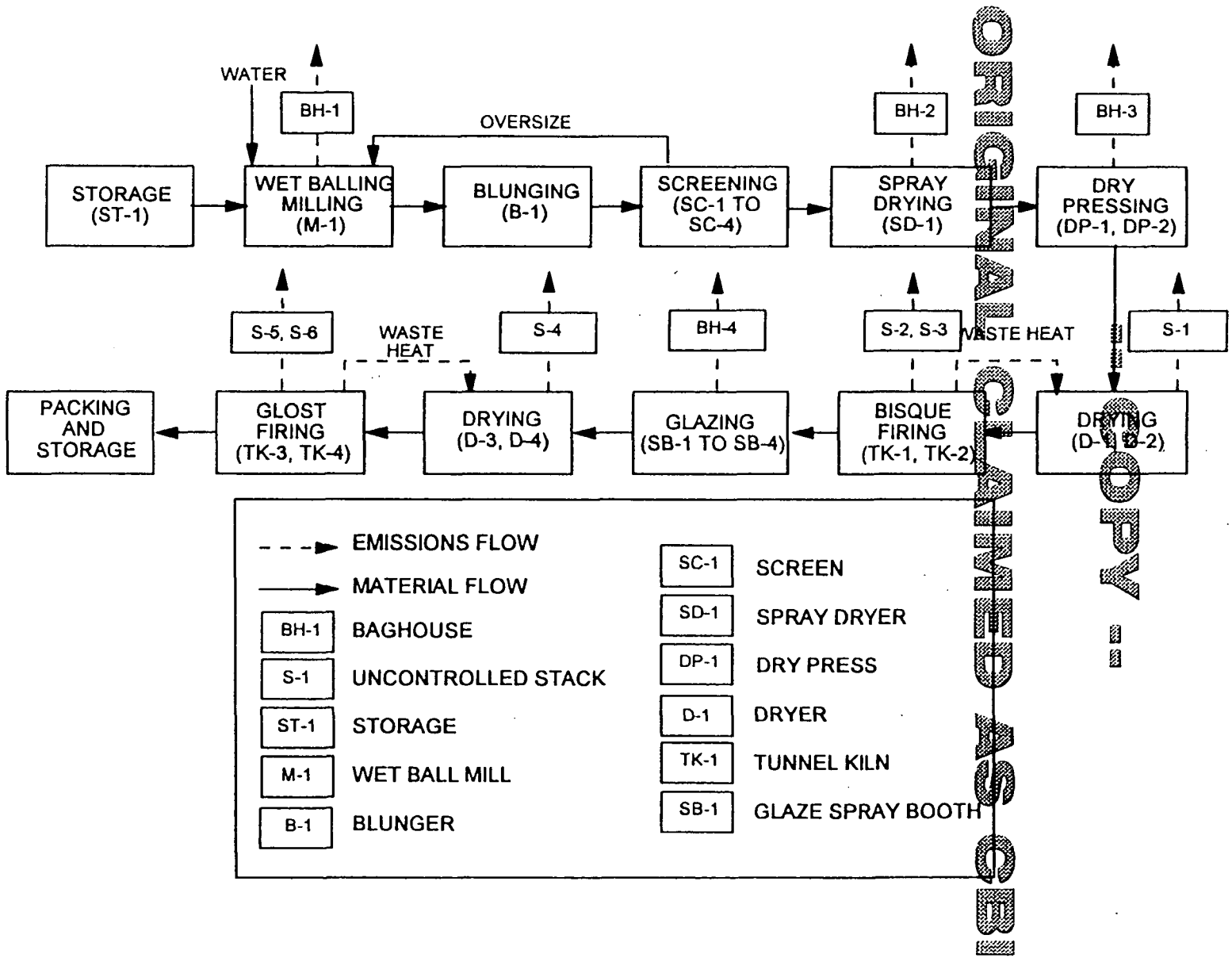

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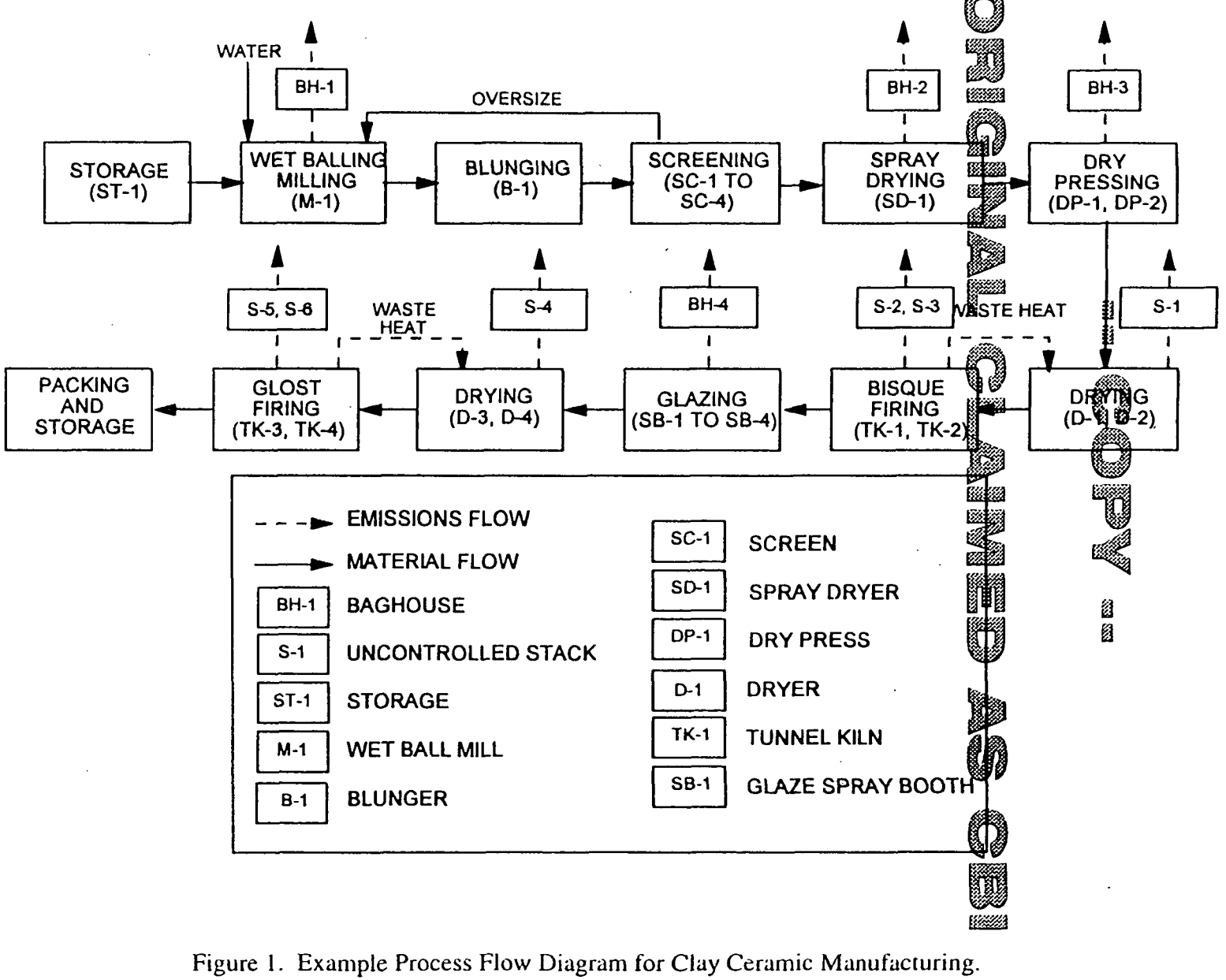

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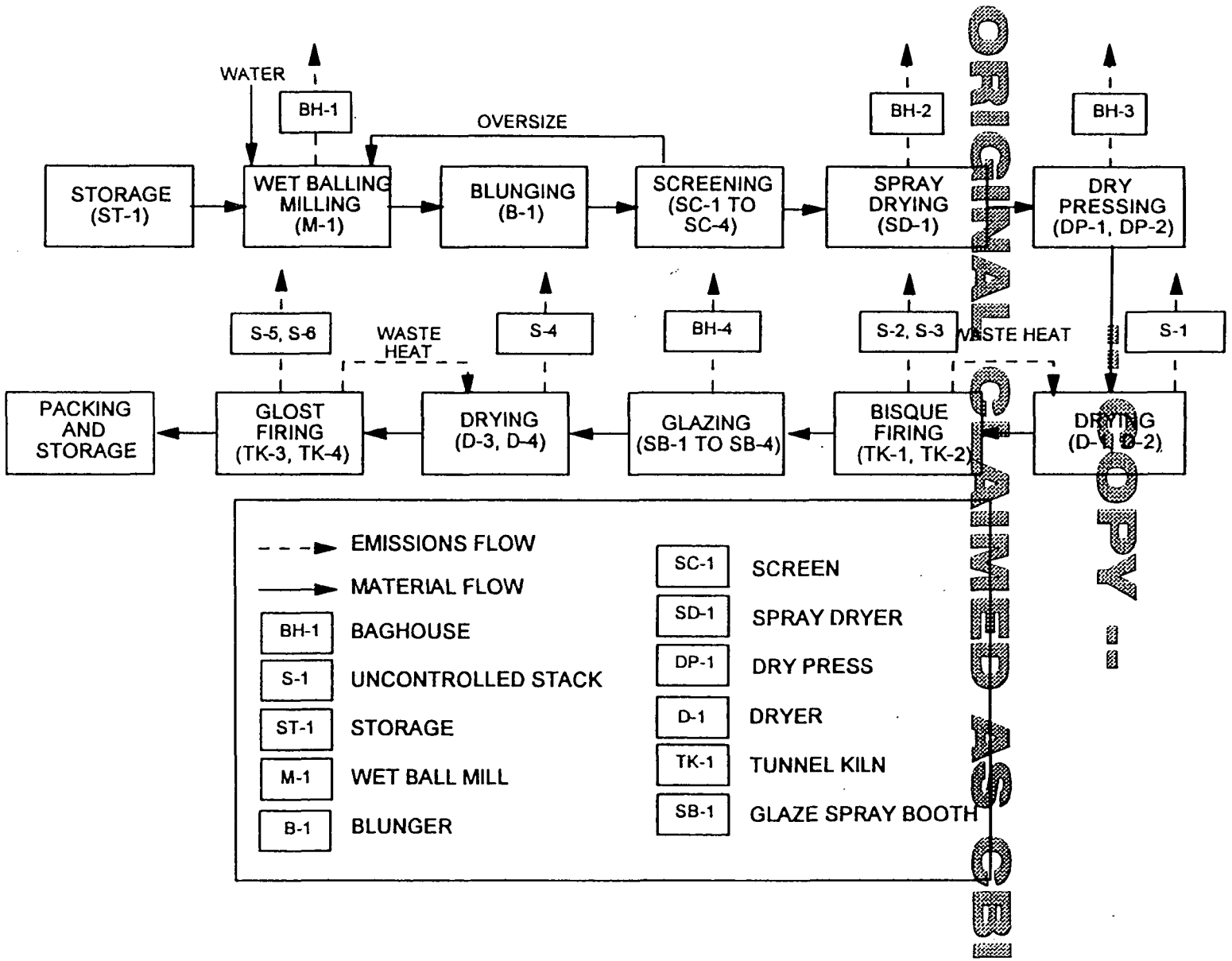

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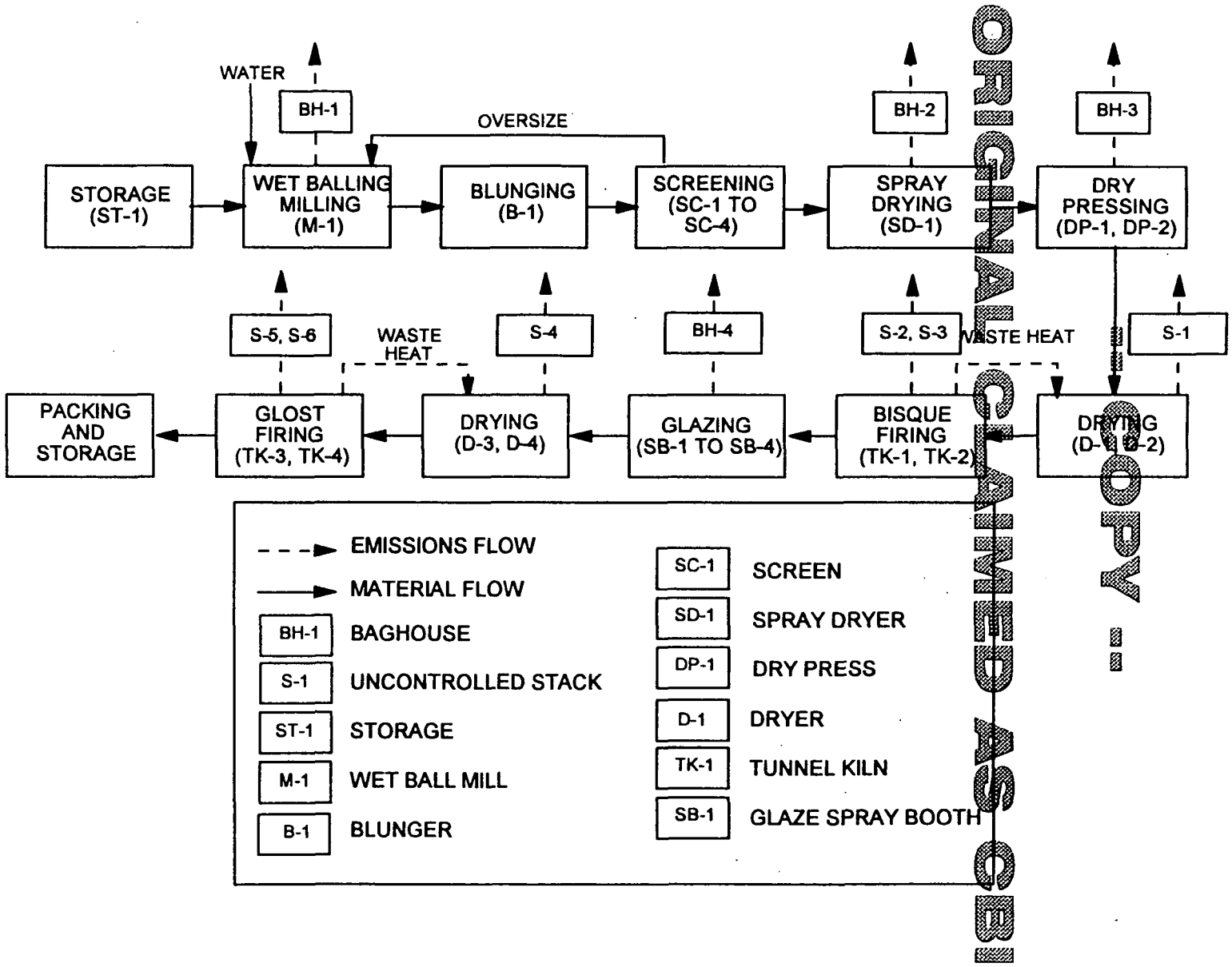

Figure 1. Example Process Flow Diagram for Clay Ceramic Manufacturing.

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--- EMISSION ESTIMATE ---

Attachment A

BACKGROUND FOR MACT STANDARDS DEVELOPMENT SURVEY

I. Introduction

The purpose of this attachment is to provide the respondent with additional detail on the relevant requirements of the Clean Air Act and to provide an explanation, where appropriate, for the purpose and objectives of individual survey sections or questions. Finally, a list of definitions of key terms used in the survey is provided.

II. Summary of Clean Air Act Requirements

The maximum achievable control technology (MACT) standards development survey was developed by the U. S. Environmental Protection Agency's (EPA's) Office of Air Quality Planning and Standards Emission Standards Division (OAQPS/ESD) to help EPA meet its obligations under the Clean Air Act Amendments of 1990. Specifically, the Clean Air Act Amendments require EPA to develop regulations under Section 112(d) to limit emissions of hazardous air pollutants (HAP's) from major and area sources of emissions. Section 112(a) defines a major source as "any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants." Based on the Administrator's determination, EPA may lower the major source cutoff for individual HAP's. An area source is "any stationary source of hazardous air pollutants that is not a major source."

The Clean Air Act Amendments of 1990 prescribe an analytical framework that EPA is to apply in developing national emission standards for hazardous air pollutants (NESHAP) for major sources. A key concept in this framework is the establishment of the MACT floor. The amendments specify that NESHAP for existing sources are to be no less stringent (but may be more stringent) than the average emission limitation achieved by the best performing 12 percent of the existing sources in each category or subcategory of sources. In categories or subcategories with less than 30 sources, the floor is to be based on the average emission limitation achieved by the best performing 5 sources. The MACT floor for new sources is the emission control that is achieved in practice by the best controlled similar source.

A second key feature of the NESHAP development process is that of determining subcategories. The Clean Air Act Amendments allow the EPA Administrator to "distinguish among classes, types, and sizes of sources within a category or subcategory in establishing such standards" (Section 112(d)). The effect of this provision is that for each category or subcategory for which EPA is developing NESHAP, the resulting standards could be tailored to account for significant differences in classes, types, and sizes of sources. For each of the resulting classifications, a separate MACT floor determination is required.

III. Explanation of Key Survey Sections and Questions

Part I, Instructions, defines the source category operations that are to be addressed in completing the survey. The respondent is instructed that no additional emission testing or monitoring is required to respond to the survey. However, the respondent is asked to supply engineering calculations where appropriate. The instructions provide an EPA contact for any questions on the part of the respondent as well as the address to which the completed survey should be mailed. Finally, the instructions direct the respondent to this attachment.

Part II, General Information, is where the respondent, plant, and company are identified. Because of the complex relationships between and among corporations, the respondent is asked to distinguish between the legal owner and the legal operator. In some cases, one owner may sell a specific operation to another company, but continue to operate the facility. In this case, the legal owner information may be used in the EPA's economic analysis to distinguish small businesses.

Question D on number of employees is asked so that EPA may identify small businesses. The Regulatory Flexibility Act (Public Law 96-354, September 19, 1980) requires consideration of the impacts of regulations on small businesses. The major purpose of the Act is to keep regulatory requirements from getting out of proportion to the scale of the businesses being regulated, without compromising the objectives of, in this case, the Clean Air Act. If a regulation is likely to have a significant economic impact on a substantial number of small businesses, EPA may give special consideration to those small businesses when analyzing regulatory alternatives and drafting a regulation. For producers and users of HAP's, the Small Business Administration uses employment ranges to separate businesses into "large" and "small" categories. These employment ranges are substantially as given in Question D. (In any given situation, the actual cutoff between large and small will depend on the Standard Industrial Classification of the establishments in question. Furthermore, EPA sometimes finds that different employment ranges or even other criteria are more suitable for the process of defining which businesses are large and which are small.)

Information on the legal operator, plant name, and technical contact is used by EPA to ensure that the plant is properly identified and that the appropriate contacts are available to answer ~~any~~ questions EPA might have on the completed survey.

The respondent is also asked to provide the latitudinal and longitudinal coordinates of the facility. Sources of these data include EPA permits (e.g. NPDES permits), county property records, facility blueprints, and site plans. Instructions on the development of coordinates can be found in Appendix A.

Part III, Plant Operations. The purpose of Question A is to obtain a list of processes within the source category and information on the relative magnitude of each operation in terms of production amounts, production capacity, and operating schedule. The processes listed in

Table 1 will define the scope of the rest of the survey and ensure that consistent terminology is used throughout the survey. Information on production amounts and capacity and operating schedules may be used in making subcategory decisions. For example, these data are used in evaluating size distinctions between facilities. In addition, information on production capacity is used to size control devices. The information on age of the line and its remaining economic life is used in the economic analysis to determine the potential impacts of equipment retrofit.

The respondent is also asked to provide a process flow diagram for each process (or, depending on the source category, group of like processes) identified in Table 1. The process flow diagram includes all activities that generate HAP emissions, including the storage, transfer, handling, and processing of materials and wastewater and solid waste handling. Generating the flow diagrams is a necessary step in completing Table 3 in Part IV. The process flow diagram is an essential tool for EPA to use in understanding how the emissions data relate to plantspecific processes.

Question B is designed to allow to project price increases due to regulation by identifying each process that will be affected directly or indirectly. The name and quantity of each input chemical and the name and quantity of each output chemical, producer-by-producer, provide the basis for tracing potential price increases through chemical trees and sometimes beyond the trees to consumer products. For example, there are several commercial processes for producing benzene. Typically, a portion of benzene production at a plant is used on site for the production of derivative chemicals, and the remainder is shipped off site for similar or other use. If a respondent were to omit captively-consumed benzene from process unit data, perhaps on the grounds that the benzene is not sold in the traditional meaning of the term, EPA's ability to model and project price increases would be hindered.

Part IV, HAP's Usage and Emissions, provides the bulk of the information needed by EPA to set the MACT floor and will also help in identifying potential subcategories. In Question A, the respondent is asked to cross-reference the list of HAP's with each emission point identified in the process flow diagram(s). The information on this table will allow EPA to determine the variability in HAP emissions and their sources within the source category.

In Question B, the respondent is asked to complete Table 3, which requests information on levels of HAP emissions and the presence and effectiveness of capture and control systems. These two items are the key parameters in making a MACT floor determination. Information is also requested on the flow rate and HAP concentration of the captured emission stream, which may be used to distinguish subcategories based on control options and costs. It is particularly important that EPA be able to determine when certain control technologies may prove infeasible for some sources.

Question C requires the respondent to provide additional information on key design and operating parameters of emission capture and control equipment. This information is used to allow EPA to understand the basis of the efficiency estimates provided in Table 3 and to establish the MACT floor in terms of technological options.

Question D provides instructions to the respondent regarding the means and level of detail required to support the data requested in Part IV. The information is critical in understanding the data provided by the respondents.

Part V, Factors that Affect HAP Emission Reductions, requests information that will help ensure that EPA considers source reduction measures, which reduce the amount of any HAP prior to recycling, treatment, or disposal, in establishing the MACT floor. Completing this section is voluntary. It is important to obtain information on source reduction measures because both the Clean Air Act and the Pollution Prevention Act of 1990 urge emission sources to adopt source reduction measures. As a result, in order to determine MACT, EPA must obtain the data necessary to consider the viability and impacts of source reduction measures.

Part VI, Miscellaneous, includes a question on whether the controls or process changes on the source are the result of new source review (NSR) requirements. Sources subject to the lowest achievable emission rate (LAER) requirements of the NSR program must be excluded from the MACT floor calculation under Section 112(d)(3)(A) for existing sources if LAER is achieved 18 months before the emissions standard is proposed or within 30 months before such standard is promulgated, whichever is later. The last question asks the respondent to describe any other factors not addressed in the above questions that might serve to distinguish subcategories.

IV. Guidance Documents

Following is a list of EPA guidance documents that may be useful to respondents in estimating HAP emissions.

1. Compilation of Air Pollutant Emission Factors: Volume I: Stationary Point and Area Sources. U. S. Environmental Protection Agency. Research Triangle Park, N.C. September 1985. Publication No.: AP-42.

2. Procedures for Establishing Emissions for Early Reduction Compliance Extensions-Draft. U. S. Environmental Protection Agency. Research Triangle Park, N.C. July 1991. Publication No.: EPA-450/3-91-012a.

3. For batch operations: Control of Volatile Organic Emissions from Manufacturer of Synthesized Pharmaceutical Products. U. S. Environmental Protection Agency. December 1978. Publication No.: EPA-450/2-78-029.

4. Organic Chemical Manufacturing Volumes 1-10. U. S. Environmental Protection Agency. December 1980. Publication No.: EPA-450/3-80-023 through 028e.

5. VOC Fugitive Emissions in Synthetic Organic Chemicals Manufacturing Industry--Background Information for Proposed Standards. November 1980. Publication No.: EPA-450/3-80-033a.

V. Key Term Definitions

The following definitions are provided for the purpose of the survey only. They are not intended to replace "official" definitions developed elsewhere.

Capture:	The containment or recovery of emissions from a process for direction into a duct, which may be exhausted through a stack or sent to a control device before exiting through a stack.
Capture device:	A hood, enclosed room, floor sweep or other means of collecting pollutants into a duct.
Capture efficiency:	The fraction (usually expressed as a percentage) of the pollutants that are directed to the control device.
Control:	The collection for recovery or destruction of pollutants, which might otherwise be exhausted to the atmosphere.
Control device:	Any equipment that reduces the quantity of a pollutant that is emitted to the air. The device may destroy or secure--the pollutant for subsequent recovery. Examples are incinerators, carbon adsorbers, condensers, scrubbers, and baghouses.
Control efficiency:	One minus the fraction (usually expressed as a percentage) of the pollutants that are emitted from the control device compared to the pollutants entering the control device.
Feedstock:	Raw material/input to the process line.
Process (process line):	The sum of unit operations (e.g., storage, fugitive dust, transfer operations, process fugitives, stacks, and waste management) that result in the production of individual or groups of products.
Process fugitives:	Air emissions emanating from the process line that are not released through stacks.
Stacks:	Contained air stream (excluding storage tanks), which are points through which emissions exit the facility.
Vent stream:	Air emissions emanating from process line(s) that are released through stacks.
Waste management:	Handling, treatment, storage, and disposal of waste products.

IV. D. Calculations and emission factors

SOX : Stack test
SO3: Stack test
NOX: Stack test
TSP: Stack test with exception of glaze booths (8), stockpiles and transportation*
PM10: Stack test with exception of glaze booths (8), stockpiles and transportation*
CO: Stack test
VOC: AP-42, Section 11.3: Brick and Structural Clay Product Manufacturing (final report) Table 11.3-5
HF: Stack test, emission factor derived for remaining two intermittent kilns
Cr: Glaze booth engineering estimate
Mn: Glaze booth engineering estimate
Co: Glaze booth engineering estimate
NH3, Benzene, HCOH: applies to ware dryers (7). Derived from 14 MMBTU/HR natural gas combustion.

*TSP and PM10: transportation, AP-42, 5th edition, Table 13.2.2-1, Rural roads-gravel
Stockpiles: AP-42, Aggregate Handling and Storage Piles (Section 13.2.4)

*Cr, Mn, Co: Total of substances used in 1997
Cr: 14,479#
Mn: 9241#
Co: 2012#

Glaze booths are used to apply ceramic glazes to roofing tile. Usually one or two booths are operating simultaneously. The booths are constructed of galvanized sheet metal with baffles/deflections in the back of the booth. Exhaust fan and pipe extend through the roof.

Estimated transfer efficiency (%) = 60%
Recycled/Reclaimed in spray booth = 28%
Additional material losses (%) = 7%
Emission to atmosphere (%) = 5%