



**Division of Occupational Safety and Health
POLICY AND PROCEDURES MANUAL**

**National Emphasis Program – Primary
Metal Industries**

TABLE OF CONTENTS

A. Background..... 1

B. Application..... 1

C. National Emphasis Program Goals.....1

D. Site Selection.....2

E. Complaints and Referrals.....3

F. Programmed Inspections3

G. Expanding Scope of Inspection.....3

H. Consultation Services.....3

I. Opening Conference4

J. Walkaround and Records Review.....5

K. CSHO Protection6

L. Citation Guidance.....6

M. Other Applicable Requirements.....8

N. Follow-up Inspections.....8

O. Program Evaluation.....9

P. Coordination9

Q. OIS Coding.....9

Appendix A - Chemical Exposure Hazards Found in Primary Metal Industries..... A-1

Appendix B - Primary Metal Industries - SIC/NAICS CodesB-1



Division of Occupational Safety and Health
POLICY AND PROCEDURES MANUAL

NEP

National Emphasis Program – Primary Metal Industries

Issue Date: March 11, 2015

Revised:
4/10/15

AUTHORITY: California Labor Code Sections 6307, 6308, 6309, 6313, 6314, 6314.1, 6317, 6320, 6321, 6322, 6325, 6354, 6355, 6429(c), 7850 – 7870, 7953, and 142.3

POLICY: It is the policy of the Division of Occupational Safety and Health to identify and reduce or eliminate worker exposures to harmful chemical and physical hazards in facilities in the Primary Metal Industries. This policy and procedure describes the steps to implementing a National Emphasis Program to identify and reduce or eliminate worker exposures to harmful chemical and physical hazards in facilities in Primary Metal Industries, such as iron foundries and establishments that manufacture nails, insulated wires and cables, steel piping, and copper and aluminum products, under Major Group 33 in the Standard Industrial Classification (SIC) Manual, and now under the North American Industry Classification System (NAICS) codes in the 331XXX sector, plus 324199 (coke ovens), as listed in Appendix B of this Policy and Procedure.

A. Background: The Primary Metal Industries were identified as a concern during a review of data from the Bureau of Labor Statistics' Census of Fatal Occupational Injuries. The BLS report also showed that five of the top 20 industries with non-fatal occupational injury and illness cases were within these SIC/NAICS codes. OSHA inspection history has shown that individuals employed in the Primary Metal Industries are exposed to serious safety and health hazards on a daily basis. Previous inspections of primary metal establishments have resulted in citations for overexposures to a wide variety of health hazards including chemical exposures in foundry operations as well as physical stressors such as noise and heat.

This NEP will also heighten health and safety awareness within the affected industries of the potential for worker exposure to harmful chemical and physical hazards so that employers may voluntarily take steps to correct hazards and comply with current safety and health regulations

Chemical exposures found in these facilities include carbon monoxide, lead, silica, metal dusts and fumes, and various other chemical substances. A more extensive list is provided in Appendix A.

The Primary Metal Industries are a group of establishments engaged in the smelting and refining of both ferrous and nonferrous metals. These metals are refined from ore, pig and scrap, during rolling, drawing, casting and alloying metal operations. Some of the products they manufacture include nails, spikes, insulated wires and cables, steel piping, sheets and bars, copper and aluminum products, and coke. These SIC/NAICS codes are listed in Appendix B.

B. Application: This Instruction applies to all primary metal manufacturing facilities under the SIC/NAICS codes listed in Appendix B.

C. National Emphasis Program Goals:

1. To minimize and/or eliminate worker exposure to the hazards, both physical and chemical, which are known to be present in the primary metal industries. Reduction and/or elimination of chemical exposures
-

will help to reduce and prevent the occurrence of skin and eye injuries as well as occupational lung injury and other illnesses. Reduction of worker exposures to physical hazards will help prevent adverse effects such as hearing loss.

2. To significantly reduce/eliminate worker overexposures to both chemical and physical stressors and, therefore, control the health hazards associated with such exposures. This goal will be accomplished by a combined effort of inspection targeting, outreach to employers, and compliance assistance.

3. Inspections will be directed to those facilities known to manufacture primary metals and metal products.

4. To ensure abatement and measure the effectiveness of this NEP, follow-up site visits often will be necessary where overexposures have been documented.

Program Procedures:

D. Site Selection:

1. Targeting Sources:

a. Inspections conducted under this NEP shall focus on facilities with workers in Major Group 33 of the SIC Manual, and now identified by their corresponding NAICS codes in Appendix B.

b. When performing programmed inspections under this NEP, each District Office, in conjunction with the Regional Office, shall develop an inspection master list of establishments in accordance with established procedures for scheduling programmed inspections.

2. Master List Generation:

a. Upon request, using the most recently available data, the Program Office using a random number generator application will prepare a list of establishments in the SIC/NAICS codes mentioned in Appendix B. Each establishment will be assigned a unique random number and the list will be ordered in a sequential manner based on the assigned number. The Program Office will then provide to each District Office a list of establishments in these SIC/NAICS codes within the District Office's geographical jurisdiction.

b. Whenever an office becomes aware of a previously unknown manufacturing establishment within any of the identified SIC/NAICS codes, the establishment shall be added to the list.

c. Establishments with fewer than ten employees shall also be included in this NEP.

3. Deletions.

a. Based on their familiarity with local industries, Regional and District offices shall delete from the master list any firms known to be out of business.

b. The Regional and District Offices shall also delete any establishment that has had an inspection where worker exposures have been evaluated within the previous two (2) years, provided either that no serious violations related to chemical or noise exposures were cited or that serious violations were cited but a follow-up inspection documented effective abatement of the cited conditions.

4. When performing programmed inspections under this NEP, each District Office shall conduct inspections from the list of establishments in the SICs/NAICS codes contained in Appendix B. Inspections shall be scheduled in the order called for by the assigned number.

5. The establishment list generated under this NEP shall be maintained in the Regional/District Offices for a period of three years.

E. Complaints and Referrals:

Complaint or referral inspections alleging worker exposure to any other hazards at facilities in these SICs/NAICS codes may be expanded to address the issues covered under this NEP. For further guidance see DOSH Policy & Procedure C-1A.

F. Programmed Inspections:

Some establishments may be selected for inspection under the current Programmed Inspection Targeting plan or also under one or more other OSHA enforcement initiatives (National Emphasis (NEP) or Local Emphasis (LEP) Programs). This NEP, which is based on exposure hazards in the Primary Metal Industries, shall be run concurrently with the Programmed Inspection Targeting plans.

Whenever an establishment is scheduled for inspection on the current cycles of both the NEP plan and the current Programmed Inspection Targeting plan, the inspections may be scheduled at the same time. CSHOs shall use all IMIS/OIS codes applicable for the inspection. The employer's Federal Employer Identification Number (FEIN) shall also be recorded for each inspection.

In cases where an establishment has been scheduled for inspection under both the Programmed Inspection Targeting Plan and this NEP, an inspection limited in scope to the health issues targeted by the NEP shall be conducted even if all Days Away Restricted or Transferred (DART) rates for the establishment are found to be below the current Programmed Inspection Targeting Plan inspection thresholds. Other NEPs and/or LEPs may also run concurrently with this NEP.

G. Expanding Scope of Inspection:

Inspections under this NEP shall normally be limited to evaluating worker exposure to physical and chemical hazards described in this Instruction. However, a CSHO may expand the scope of the inspection if other safety and health hazards or violations are observed and/or brought to their attention. The CSHO shall follow the guidelines in DOSH Policy & Procedure C-1A when expanding the scope of any inspection.

H. Consultation Services:

1. Cal/OSHA's Consultation Service provides numerous guides, fact sheets, and hazard alerts available on-line at <http://www.dir.ca.gov/dosh/puborder.asp> to provide readily available compliance assistance resources for this industry that include:

- a. Respiratory Protection in the Workplace
- b. Guide to Developing Your Workplace Injury & Illness Prevention Program
- c. Control of Noise Exposure for General Industry
- d. Guide to California Hazard Communication Regulation
- e. Silica Hazard Alert
- f. Respirator Regulation Fact Sheet

2. Small businesses should contact Cal/OSHA's On-Site Consultation Program. Cal/OSHA's On-Site Consultation Service offers free and confidential advice to small and medium-sized businesses throughout the state, with priority given to high-hazard worksites. On-site Consultation services are separate from enforcement

and do not result in penalties or citations. Consultants work with employers to identify workplace hazards, provide advice on compliance with Cal/OSHA standards, and assist in establishing safety and health management systems. Additional information about the On-Site Consultation Program can be found on the web at www.dir.ca.gov/dosh/consultation.html

Inspection Procedures:

This section outlines procedures for conducting inspections and preparing citations for hazards related to worker exposures. For further guidance, CSHOs should consult DOSH Policy & Procedure C-1A.

I. Opening Conference:

1. During the opening conference, the CSHO shall initially confirm that the employer falls under the SIC/NAICS classification of a primary metal industry. If the SIC/NAICS code of the establishment is not included in Appendix B, the CSHO will exit the facility (if there is no other reason to inspect the employer) and no inspection shall be conducted under this NEP. CSHO's shall code these as No Inspection on the Cal/OSHA Form 1.
2. CSHOs should explain the goals of this NEP to the employer.
 - a. To minimize and or eliminate worker exposure to physical and chemical hazards present in the primary metals industries.
 - b. To reduce and prevent the occurrence of skin and eye injuries as well as occupational lung injuries and other illnesses.
 - c. To reduce and prevent adverse effects such as hearing loss.
3. CSHOs should request information on any hazard analyses performed at the facility for the following:
 - a. T8CCR 3380(f)(2) Hazard assessment and equipment selection: Cal/OSHA's Personal Protective Equipment (PPE) standards require employers to assess their workplaces to determine if hazards are present, or are likely to be present, that necessitate the use of PPE (T8CCR 3381- 3385 and 3387). If such hazards are present or are likely to be present (as determined by the information from Material Safety Data Sheets (MSDSs) or Safety Data Sheets (SDSs) or observable workplace conditions), employers must ensure that workers use the appropriate PPE to protect their eyes, face, hands and extremities, depending on the nature of the hazard (T8CCR 3380 – 3385 and 3387). The employer is responsible for both the quality of the hazard assessment and the adequacy of the PPE selected.
 - b. T8CCR 5144(d) Selection of Respirators: Employers in the primary metal industries with potential respiratory hazards are required to conduct the evaluation required by T8CCR 5144(d) of the Respiratory Protection standard.

The hazard evaluation requirement is performance-oriented, and a variety of estimation techniques may be used to characterize worker exposures, depending upon the nature of the chemical products, processes, operating environment, and other factors.

Where a substance is used that may pose a respiratory hazard (see MSDSs/SDSs for chemical substance in use), the employer must assess the nature and magnitude of the hazard relative to the conditions of use in its workplace, considering both normal operating conditions and reasonably foreseeable emergencies.

- c. T8CCR 5194(d) Hazard classification: Cal/OSHA's Hazard Communication standard requires that employers, who choose not to rely on the classification of a hazardous chemical performed by a chemical

manufacturer or importer, must conduct their own evaluation to classify the chemical in accord with T8CCR 5194(d), and consider the available scientific evidence concerning that chemical. Otherwise, employers can rely on information from the MSDS/SDS.

J. Walkaround and Records Review:

1. **MSDS/SDS.** CSHOs should review the MSDSs/SDSs for chemicals used and/or manufactured at the facility to ensure they are in compliance with the requirements of T8CCR 5194(g).
 2. **Injury/Illness Records.** CSHOs should review the employer's Log 300 injury and illness records to identify any workers with recorded illnesses or symptoms associated with exposure to chemical or physical hazards. CSHOs should investigate log entries for any type of respiratory issues, hearing loss, or other evidence of adverse health effects. Skin or eye injuries involving chemicals should also be investigated.
 3. **Medical Access Orders.** Based on information obtained from illness/injury records and interviews, CSHOs may need to review additional worker medical information. When accessing worker medical information, CSHOs should follow the procedures in DOSH Policy & Procedure C-38 (Access to Employee Exposure and/or Medical Records) and obtain a written medical access order. CSHOs may also consider obtaining specific written consent from a worker pursuant to T8CCR 3204(e)(2)(B)(1), and should ensure that the agency or agency worker is listed on the consent form as the designated representative to receive the information.
 4. **Production Process Evaluation.** CSHOs should request and review the employer's production and processing records.
 - a. Document the types and quantities of chemicals used, what processes are involved, and the frequency of use.
 - b. Evaluate and document the extent of engineering controls relative to the processes, the work practices implemented, and any protective equipment used during these operations.
Primary means for controlling exposures include local exhaust ventilation to remove contaminants at their source, enclosing production processes or exposure sources, isolation of the processes or exposure sources, substitution of less hazardous materials and general dilution ventilation.
 - c. Evaluate workers' respirator usage, if any, and request a copy of the employer's respiratory protection program.
 - d. Evaluate personal air and noise monitoring records conducted by the employer.
 5. **Exposure Monitoring.** CSHOs shall normally conduct full-shift personal air monitoring and/or short-term personal air monitoring as appropriate. For some chemicals, monitoring to assess short-term exposure limits (STELs), ceiling (C) or OSHA Permissible Exposure Limits (PELs) may be necessary. If the employer has conducted representative sampling in the previous six months, which shows no overexposures for all processes that have a potential for worker exposures, and any changes in the process are not likely to have increased exposures, the CSHO shall do screening sampling of the work operation(s) with the highest potential exposures to determine if additional sampling is necessary. When reviewing the employer's sampling, ensure that all job functions and the heaviest production shifts have been evaluated.
 - a. CSHOs shall use the available MSDSs/SDSs, production and process information in determining whether additional monitoring for other chemicals should be performed.
 - b. Significant concentrations of airborne contaminants may be encountered in many operations in the primary metal industries. Processes that should be evaluated include but are not limited to: handling of scrap, the smelting process, the treatment and inoculation of molten metal before pouring, core- and mold-
-

making processes, pouring molten metal, cooling of casts, casting knockout, casting finishing operations, and the clean-out and re-lining of furnaces.

K. CSHO Protection:

1. CSHOs conducting these inspections should have some training or experience in the primary metal industry.
2. CSHOs must don the appropriate PPE before entering any hazardous areas. Hard hat, safety shoes, safety glasses (or goggles), and hearing protection will usually be required when inspecting any of these areas.
3. CSHOs must remain at least twenty feet from melting and pouring operations.
4. When inspecting melting and pouring operations, CSHOs should avoid the use of urethane foam earplugs, which may be combustible.
5. CSHOs shall wear long sleeve cotton shirts and long pants. They should not wear polyester, nylon or other manmade fabrics that can melt or readily ignite. Fire-resistant clothing may be required and is encouraged. In most foundry areas, long sleeve cotton coveralls which have no outside pockets or cuffs should be worn. Pant legs must cover the top of the boot edge. CSHOs should be aware of hot pipes and hot surfaces in facilities that can result in burn injuries to employees and themselves. (See T8CCR3308)
6. CSHOs are not anticipated to be handling chemicals in foundries; however, the presence of airborne gases, fumes, and caustics, which may cause dermal irritation and require the use of gloves. Leather gloves are mildly chemical resistant and heat tolerant. Where chemical exposures are found to be higher than average, treated leather or Kevlar gloves should be worn. Sleeves must cover the cuff of the glove. CSHOs should not tuck sleeves into the cuffs of the gloves. When the arm is fully extended, the cuff of the glove and sleeve must not allow bare skin to be exposed. Impact and chemical-resistant goggles are appropriate for these industries. Safety glasses with side shields are not recommended in the presence of and potential exposure to caustics, corrosives, dusts and acid. Impact resistance is required since the industry has the potential for flying and falling debris. Where molten ferrous metal operations must be viewed for a significant length of time, #3-#5 green goggles (or #3-#5 safety glasses under goggles) should be worn.
7. Respiratory protection may also be required in many work areas. A list of potential contaminants is found in Appendix A. When in the vicinity of operations where the presence of silica is known or suspected, CSHOs shall wear a half-mask or full face respirator equipped with P100 cartridge(s). If other respiratory hazards exist, CSHOs shall wear the appropriate combination cartridge.
8. CSHOs should discuss the need for further PPE with their District Manager or Regional Senior Safety Engineer/Industrial Hygienist.

L. Citation Guidance:

1. Cal/OSHA PELs.

Where exposures are in excess of the permissible exposure limits (PELs), ceiling limits (C) or STELs, for substances listed in Table AC-1 of T8CCR 5155, cite the applicable sections of T8CCR 5155.

2. Engineering and Work Practice Controls.

If an employer has failed to implement administrative, engineering or work practice controls where feasible for reducing exposures to levels below the PEL, the CSHO shall usually cite T8CCR 5141(a), (b) or (c) or the appropriate engineering control section of the substance-specific standard.

3. Respirator Standard.

- a. If there are respiratory hazards present at the work site and employers have failed to conduct the initial respiratory hazard evaluation, cite T8CCR 5144(d)(1)(C).
- b. Where workers are required to use respirators, but the employer has failed to comply with a requirement in the respirator standard, cite the applicable sections of T8CCR 5144.

4. Personal Protective Equipment (PPE) Standards.

Pursuant to T8CCR 3380(f)(1) and T8CCR 3380(f)(2), the employer must conduct a hazard assessment to determine if hazards are likely to be present that necessitate the use of PPE and have a written certification that the assessment was conducted. Where chemicals having irritant properties are present, PPE is not being used or is inadequate, and workers' eyes and/or skin are potentially exposed to such chemicals, cite the applicable PPE standard (T8CCR 3380, 3381, 3382, 3383, 3384, and 3385).

- a. Chemical goggles or other appropriate eye protection must be used when there is a potential for splash or vapor exposure to a substance that is likely to cause injury to the eye.
- b. Chemical-resistant gloves, or sleeves or other appropriate protection for exposed skin must be used when handling liquid, paste, or powdered substances that could cause dermal injury. CSHOs should consult the MSDS/SDS for the appropriate type of gloves and/or the glove chart in OSHA PPE Publication 3151-12R, 2003.
- c. The employer must also provide training for exposed workers as indicated in T8CCR 3380(f)(4). This training must include information on when and how to use appropriate PPE.
- d. In addition, employers must provide information on the value, limitations and maintenance of this equipment in accordance with T8CCR 3380(f)(4) and 5144(c).

5. Occupational Noise Standard.

- a. At levels at or above an 8-hour time-weighted-average (TWA) of 85 dBA, an effective hearing conservation program must be implemented. The program must be evaluated for completeness and effectiveness of implementation.
- b. Where noise levels are above the 90 dBA TWA, hearing protection must be worn by all exposed workers until engineering or administrative controls reduce exposures to below the PEL. Workers who have already experienced a standard threshold shift must wear hearing protection at levels at or above 85 dBA TWA. Cite the applicable paragraph under T8CCR 5098.
- c. When hearing protection is required, employers must make a variety of hearing protectors available at no cost to the workers.

6. Expanded Health Standards. Compliance with the elements of the expanded health standards shall be evaluated, if exposures are found to chemicals, such as Lead, T8CCR 5198, Chromium VI, T8CCR 5206, or Cadmium, T8CCR 5207.

M. Other Applicable Requirements:

1. Hazard Communication.

- a. Workers who may be exposed to chemicals are required to be trained on the hazards of the chemicals in the workplace pursuant to T8CCR 5194(h).
- b. Workers must be informed of the signs and symptoms of any respiratory, skin or eye conditions associated with exposures to hazardous chemicals in the workplace.
- c. Employers must ensure that all MSDSs/SDSs are readily accessible to workers. CSHOs should ensure that all containers are labeled with the appropriate hazard warnings. See T8CCR 5194(e)

Citation Guidance:

Detailed inspection and citation guidance, including guidance on how to address inadequate MSDSs/SDSs, is contained in DOSH Policy & Procedure C-43 Hazard Communication.

2. Housekeeping and Hygiene Practices. (T8CCR 3362)

- a. Determine whether the employer's housekeeping and hygiene practices may contribute to overexposure. For example:
Exposed surfaces should be as free as practicable of hazardous dusts, such as lead and chromium (bulk samples of the dust may need to be collected).
Contaminated surfaces should not be blown clean with compressed air or other forced air (such as leaf blowers).
If vacuuming is used for cleaning, the exhaust air should be properly filtered to prevent release of contaminants back into the workroom.
There should be separate break areas for consuming food and beverages that are kept free of harmful dusts. Clothes contaminated with hazardous dusts should not be blown or shaken to remove dust.
- b. Document poor housekeeping and hygiene practices.

3. Access to Employee Exposure and Medical Records. (T8CCR 3204, DOSH Policy & Procedure C-38)

- a. Interview workers to determine whether they were informed of their right to review their medical and exposure records annually and understand their rights regarding the confidentiality of such records.
 - b. Review the employer's recordkeeping program to ensure that the required information is being collected and reported.
 - c. Evaluate the employer's method for ensuring the confidentiality of worker medical records.
 - d. When it is necessary to review worker medical records, ensure that they are obtained and remain confidential in accordance with T8CCR 3204(e) and DOSH Policy & Procedure C-38.
- Citation Guidance: If violations are found, CSHOs should cite the applicable section of T8CCR 3204(d) and (e). These rules do not require the creation of any records, only preservation and access requirements.

4. Heat Stress.

Engineering, administrative and work practice controls should be evaluated in areas where there is a potential for heat stress (e.g., furnaces) and/or when cases of heat stress are recorded on the OSHA 300.

N. Follow-up Inspections:

Where citations are issued for overexposures, or abatement documentation provided by the employer for other serious citations is not adequate, follow-up site visits shall be conducted to determine whether the employer is

eliminating exposures or reducing exposures below the PEL. Where exposures could not feasibly be reduced below the PEL, engineering and administrative controls must still have been implemented to reduce exposures to the extent feasible, and workers provided with adequate respiratory protection and other appropriate PPE where necessary.

O. Program Evaluation.

This NEP will be evaluated using data collected from case files and follow-up site visit reports submitted by each District Office to their Regional Office. The data will be evaluated to determine the impact of Cal/OSHA inspections on the reduction of exposures at each work site.

P. Coordination:

1. Headquarters. This NEP will be coordinated by the Deputy Chief of Enforcement Administration. All questions and comments should be directed to the Deputy Chief of Enforcement Administration. The Deputy Chief of Enforcement Administration will coordinate with the DOSH Legal Unit, DOSH Medical Unit, Calico Lab, Regional Offices and other District Offices for assistance as needed.

2. Regional Office. Each Regional Manager is required to identify a coordinator for this NEP.

Q. OIS Coding Instructions.

The instruction below is for recording inspections under this NEP. The majority of inspections conducted under this NEP will be "Health" inspections and should be coded as such. When this NEP is conducted in conjunction with any Programmed inspection, the Cal/OSHA-1 Forms shall be marked as "programmed planned" in item 24, and in item 21, Inspection Category shall be recorded as "H".

1. Inspection Types:

- a. Initiating Type: Program Planned
- b. Secondary Types: Program Planned

2. Inspection Emphasis Programs:

- a. National Emphasis Program: PMETALS
- b. State Emphasis Program: REGIONPI

3. Regional High Hazard Plans:

- a. Local Emphasis Programs:
 - (1) Primary Emphasis Program (REGIONPI)
- b. Regional High Hazard Plans:
 - (1) Scope of Inspection: Comprehensive
- c. Strategic Plan Activity:
 - (1) Federal Strategic Initiative Program:
 - (2) State Strategic Initiative Program: Targeted

If during a targeted programmed inspection (or other safety-related inspections) it is determined the SIC should be one of the 3300 SICs, the NEP code for "PMETALS" shall be recorded. This new "PMETALS" code applies to the following enforcement forms: OSHA-1, OSHA-7, OSHA-36, OSHA-90 and OSHA-55 (and the corresponding OIS pages/tabs).

Whenever a consultation visit is made in response to this NEP, Consultation request/visit forms are to be completed with the NEP code "PMETALS" in item 25 on Form-20, and in item 28 on Form-30 (and the corresponding OIS pages/tabs).

Appendix A

Chemical Exposure Hazards Found in Primary Metal Industries

acrolein	methane
ammonia	methyl alcohol
antimony	methyl formate
arsenic	methylene bisphenyl isocyanate
asbestos	molybdenum
benzene	naphthalene
2-butoxyethanol	nitric acid
carbon dioxide	nitrogen
carbon monoxide	nuisance dust
chlorine	ozone
chromium	phenol
coal tar pitch volatiles	polycyclic aromatic hydrocarbons
copper fume	propane
dimethylamine	silica
dimethyl ethylamine	sulfuric acid
formaldehyde	sulfur dioxide
furfuryl alcohol	tetraethyl lead
hydrogen chloride	toluene
hydrogen sulfide	vanadium
iron oxide	wood dust
isocyanates	xylene
isopropyl alcohol	zinc oxide
lead	
metal dusts including:	
iron	
aluminum	
manganese	
beryllium	
cadmium	
tin	
copper	
silver	
nickel	
lead	

Appendix B

Primary Metal Industries - SIC/NAICS Codes

The Primary Metal Industries (PMI) is a group of establishments engaged in the smelting and refining of both ferrous and nonferrous metals. These metals are refined from ore, pig, and scrap, during rolling, drawing, casting, and alloying metal operations. Some of the products they manufacture include nails, spikes, insulated wires and cables, steel piping, sheets and bars, copper and aluminum products, and coke. These SIC/NAICS codes include:

3312 – Steel Works, Blast Furnaces (including Coke Ovens), and Rolling Mills
(NAICS 324199, 331111, 331221)

3313 – Electrometallurgical Products Except Steel
(NAICS 331112)

3316 - Cold-Rolled Steel Sheet, Strip and Bars
(NAICS 331221)

3317 - Steel Pipe and Tubes
(NAICS 331210)

3321 - Gray and Ductile Iron Foundries
(NAICS 331511)

3322 – Malleable Iron Foundries
(NAICS 331511)

3325 – Steel Foundries, Not Elsewhere Classified
(NAICS 331513)

3331 – Primary Smelting and Refining of Copper
(NAICS 331411)

3334 – Primary Production of Aluminum
(NAICS 331312)

3339 – Primary Smelting and Refining of Nonferrous Metals, Except Copper and Aluminum (NAICS 331419)

3341 – Secondary Smelting and Refining of Nonferrous Metals
(NAICS 331314, 331423, 331492)

3351 – Rolling, Drawing and Extruding of Copper
(NAICS 331421)

3354 – Aluminum Extruded Products
(NAICS 331316)

3366 – Copper Foundries
(NAICS 331525)

3365 – Aluminum Foundries
(NAICS 331524)

3369 – Nonferrous Foundries Except Aluminum and Copper
(NAICS 331528)