



## Department of Toxic Substances Control



1001 "I" Street, 25<sup>th</sup> Floor  
P.O. Box 806  
Sacramento, California 95812-0806

Terry Tamminen  
Agency Secretary  
Cal/EPA

Arnold Schwarzenegger  
Governor

August 4, 2004

Mr. Raymond F. Williams  
US Technology Corporation  
1446 West Tuscarawas Street  
Canton, Ohio 44702

### RECYCLING OF "SPENT BLAST MEDIA" CONTAMINATED WITH COATINGS RESIDUES (CONFIDENTIAL)

Dear Mr. Williams:

Thank you for your letter essentially requesting the Department of Toxic Substances Control's (DTSC) concurrence that US Technology Corporation's (USTC) proposed recycling of "spent blast media (SBM)" would qualify the SBM for exclusion from classification as waste and regulation as hazardous waste under California law. USTC proposes to use the SBM as a substitute for sand, gravel and/or limestone<sup>1</sup> in the manufacture of "geopolymer-cement-polymer (GCP) compression formed products" such as masonry blocks for aboveground commercial construction.

#### Background

According to your letter, SBM "...is a blend of used abrasives<sup>2</sup> having particle sizes... below the blasting application specification. SBM may include pulverized coatings particulate in the form of epoxy and/or urethane thermoset plastics that may contain heavy metal pigments included for color or corrosion inhibition." "Chrome oxides, lead chromate, and cadmium oxides are pigments incorporated into coatings that end up in SBM."

<sup>1</sup>Your letter does not clearly state whether the SBM substitutes for sand, gravel and/or limestone (DTSC has presumed that your respective references to limestone and calcium carbonate are all references to the same ingredient), or whether the SBM substitutes only for sand and/or limestone in the manufacture of masonry blocks (blocks). DTSC has chosen the former as the more plausible combination, given one of the desired attributes (i.e., smoother surface) of the blocks that your letter ascribes to the presence of SBM in them.

<sup>2</sup>Your letter implies that the virgin abrasives from which the SBM is derived, are among the following: a plastic manufactured for the purpose (see the second, fourth, and sixth sentences in the first paragraph on "Page two" of your letter); a non-plastic manufactured for the purpose (see the seventh and ninth sentences in the same paragraph); or a "mined aggregate" used for the purpose (see the eighth and ninth sentences in the same paragraph). All of those virgin abrasives could contain a variety of hazardous constituents at hazardous concentrations, regardless of whether the abrasives were ever used, particularly if they were themselves manufactured from wastes. Unfortunately, your letter apparently does not address that possibility, focusing instead on the hazardous constituents found at hazardous concentrations in the coatings residues that typically contaminate the virgin abrasives when spent. *Therefore, USTC's selection of constituents sought in analyses of SBM might be too limited to determine accurately whether the SBM is actually hazardous under California law.*

## THE RECYCLING PROCESS

USTC's SBM recycling process<sup>3</sup> would involve the following steps:

- o Upon receipt, the SBM would be weighed and batched at a standardized weight;<sup>4</sup> each batch would be assigned an identification number (batch number) that would follow the batch through the entire recycling process to the final products produced from it.<sup>5</sup>
- o Each batch (presumably) of SBM is loaded by unspecified means into a feed hopper "...on the block machine", which is also served by separate silos containing "...[g]eopolymer slag, cement, sand and gravel components",<sup>6</sup> respectively.
- o Each batch (presumably) of SBM is combined in "...a batcher" with the other components according to the formula given on "Page six" of your letter, and the combination is "...homogenized, hydrated and pigmented..." to yield a "...mixed batch".
- o Each "...mixed batch is fed by conveyor to the compression molding block maker where it is fed into the mold and formed" to make a batch of raw blocks.
- o Each batch (presumably) of raw blocks is discharged "...onto a tray where it is conveyed to the initial cure area which is humidity/ temperature controlled."
- o "After 24 hours... [each batch (presumably) of raw blocks] is taken to a second staging area where it cures up to 28 days..." to yield a batch of finished blocks.

---

<sup>3</sup> Since your letter provides no information to the contrary, DTSC has presumed that at least some of the SBM accepted by USTC for recycling as proposed, originated as virgin material from sources other than USTC.

<sup>4</sup> A December 4, 2002 USTC internal memorandum (under Tab 3 of the enclosures that accompanied your letter) indicates that incoming shipments smaller than the standardized weight would be combined to meet the standardized weight, regardless of source, except that shipments that are hazardous would only be combined with other shipments that are hazardous. Incoming shipments larger than the standardized weight would be divided into as many standardized-weight batches as possible; any overages would be managed as if they were incoming shipments smaller than the standardized weight.

<sup>5</sup> According to the memorandum cited in the immediately preceding footnote, each incoming shipment would be assigned one or more lot numbers, depending on the size of the shipment. Each shipment smaller than, or the same as, the standardized weight would be assigned one lot number. Each shipment larger than the standardized weight would be assigned one lot number for each standardized-weight batch into which the shipment would be divided; any overage would be managed as a shipment smaller than the standardized weight. The lot numbers would "...be recorded and traced to the final end products using batch numbers that represent the various lots." Therefore, one batch number would correspond to one or more lot numbers, depending on the size of the shipment.

<sup>6</sup> Your letter tabulates (on "Page six") two other constituents, namely CaCO<sub>3</sub> and unspecified "Ad mix", that are not mentioned in the recycling-process description (on "Page five") but that together could amount to more than one-fourth of the total product by "%wt. [sic]" formulation.

- o At some unspecified point in the recycling process, a "split face" surface is presumably created by some unspecified method on each of the blocks.
- o "Blems [sic], defects, droppings, and wastewater are ground down or otherwise incorporated back into the manufacture of product."<sup>7</sup>

Although the recycling process would presumably be the same, regardless of whether the SBM contains hazardous constituents at hazardous waste concentrations, a finished block made from SBM containing such constituents at such concentrations would presumably be exclusively a "Split Face Block - used as an architectural face block in commercial buildings. It is not used in foundation walls or retaining walls due to its higher cost and open face that cannot be sealed. Block are [sic] laid up over existing poured foundation and concrete pads. Block are [sic] generally pigmented to a color and meet ASTM and other local codes." Accordingly, your letter states, "The recycle program proposed here will only make products utilized above ground from SBM containing a hazardous constituent."

#### LEGITIMACY OF THE RECYCLING PROCESS

USTC claims that the SBM does not contain "toxics-along-for-the-ride" (TARs) and that the proposed recycling of the SBM is legitimate. In the SBM, "...the toxic constituent is chromium, cadmium or lead in concentration ranging from 0 to 20 parts per million... by volume... and... [averaging] in the area of 7 ppm chrome or 2 ppm cadmium and 1 ppm lead."<sup>8</sup> Nevertheless, "...50% of the SBM utilized by UST[C] to make product has no heavy metals..." Of course, the SBM that is not hazardous is outside the scope of this response to your letter.

When used in the manufacture of "...GCP...compression formed products including masonry block", the "...[m]etals, including heavy metals, have positive charges that bind with negatively charged silicates in the geopolymer slag formula enhancing strength..."; however, "...[b]ecause the amount of heavy metal present is so slight in ppm in the SBM, and is 1/8 of that percentage [sic] in the total mixture, it is not physically possible to measure the improved strength."

---

<sup>7</sup>The source of the SBM comprising each of the "...[b]lems [sic], defects, droppings, and wastewater" is obviously lost when those residuals are commingled by being "...ground down or otherwise incorporated back into the manufacture of product."

<sup>8</sup>Your letter did not mention how USTC determined the presence and concentration of each of the three metals found in SBM. However, apparently all of the laboratory reports of analyses that accompanied your letter (grouped under Tab No. 2 of the enclosures) identify the "Test Group" as "TCLPMETALS", so DTSC has presumed that USTC had instructed its laboratory to use only the federal TCLP to determine the presence and concentration of each toxic constituent in all samples submitted for analysis. Thus, USTC would not have discovered whether the SBM contains any toxic constituent (e.g., copper, nickel or zinc) for which no TCLP limit exists, or whether the SBM contains any toxic constituent at State hazardous waste concentration, regardless of whether a TCLP limit exists. Therefore, the SBM could be a non-RCRA hazardous waste under State law without USTC knowing that possibility.

Mr. Raymond F. Williams

August 4, 2004

Page 4

Furthermore, chrome oxides, lead chromate, and cadmium oxides "...are normally incorporated into concrete as colorants..."; however, "...[i]n the final mix the concentration from SBM is 1-2 ppm by weight...", but "...[h]eavy metals [normally present] in pigments [(i.e., colorants?)]...make up to 1-2% of the final mix for a concentration of 3,000 to 10,000 ppm or 1,500 to 5,000 times higher than the concentration of the SBM component."<sup>9</sup>

Lastly, heavy metals are: normally present in cement [( $<0.05$  percent;  $<50,000$  mg/kg) of "...chromium salts or compounds (including hexavalent chromium) or other metals (including nickel compounds)..."<sup>10</sup>]; normally present in limestone (8.824 mg/kg lead, 2.0 mg/kg chromium, and 0.791 mg/kg cadmium<sup>11</sup>); and naturally present in some sands (unspecified metals at unspecified concentrations).

Based on the information in the three immediately preceding paragraphs of this response to your letter, USTC concludes that the toxic heavy metals present in SBM: improve the final product (albeit indistinguishably); are normally present in greater concentrations in the materials for which the SBM substitutes; and are present in the SBM itself at concentrations low enough to be inconsequential.

USTC's "...chemical and physical specifications for all SBM components are [as follows]:"

- o "They must be equal to or greater than the  $\text{CaCO}_3$  [sic] or sand component they replace in sieve size distribution. [USTC]... prefer[s] a broad range from the SBM component as the lighter/finer particles fill in the voids to make a smoother product without increasing weight."
- o They "...must have a compressive strength equal to or greater than that of the final product target."
- o They "...must be inert, and also able to withstand a short-term ph [sic] exposure phase of 11 to avoid degradation during the reaction period."

---

<sup>9</sup> See the following documents that accompanied your letter (under Tab No. 6 of the enclosures): the B & H Industries, Limited's material safety data sheet [(MSDS)] for "Dry color pigment blend" ["Chromium (III)... 31.7%"]; the Alabama Pigments Company's analytical report for "Autumn Red 606" ("Cadmium, Total 20 ms/kg", "Chromium, Total  $<0.2$  ms/kg", and "Lead, Total 41 ms/kg"); and the Engelhard Corporation, Specialty Minerals and Colors Group's entry for "Machine Colorant MC-K Chromium Green Oxide..." ["Chromium (III) Oxide... % Wt: 45"]. The reason for the inclusion of the PPG Industries, Incorporated, Coatings and Resins Group's entry for "...Concept Acrylic Urethane" ("Lead, Inorganic Lead...% Wt: 85-90") among the documents that accompanied your letter is unclear; however, a handwritten word "urethane" beside a hand-underlined term "water repellants" on a fact sheet titled "Split-Face Concrete Block" that accompanied your letter (under Tab No. 4 of the enclosures) might clarify that reason.

<sup>10</sup> See Page 3 of the "Lehigh Portland Cement Company...[MSDS] for Portland Cement" that accompanied your letter (under Tab No. 6 of the enclosures).

<sup>11</sup> See Page 1 of the Czatkowice Limestone Mine Company, Limited "Average chemical composition of limestone for the production of aggregates-grit" that accompanied your letter (under Tab No. 6 of the enclosures).

Mr. Raymond F. Williams

August 4, 2004

Page 5

"The SBM is not a part of the chemical reaction used to form early strength such as the cement or long-term strength and density as is the geopolymer component. While it binds some metals with available silicates and urethane ad mix [sic], it primarily improves weight and provides a smoother surface by filling voids better than standard aggregate and at a lower cost. The greater SBM average strength increases overall product strength beyond that made of fine CaCO<sub>3</sub> [sic] and sand." USTC concludes, "The particulates in SBM are equal to, or superior to the standard components of masonry products, such as mineral aggregates of sand, gravel and limestone."

#### OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) EVALUATION OF THE RECYCLING PROCESS

During preparation of this response to your letter, DTSC received from an apparently unrelated third party, an unsolicited copy of a portion (i.e., Pages 1 and 3) of a four-page, unredacted February 26, 2003 letter (OEPA letter) from Ms. Karen Hale, Environmental Specialist 3, Division of Hazardous Waste Management, OEPA, to you regarding the subject proposal. For purposes of this response to your letter, DTSC requested by telephone and received via facsimile from OEPA, a redacted copy of the entire four-page OEPA letter.

According to the OEPA letter, SBM: is generated from the removal of coatings from surfaces (e.g., stripping of paint from aircraft); can exhibit the hazardous waste toxicity characteristic due to the presence of chromium, lead and/or cadmium in the removed paint; and when used at a specified rate per volume of aggregate, produces a masonry concrete block that exceeds the minimum ASTM - C90 standard for load-bearing masonry units, has a smoother surface, is less conductive, and weighs almost ten percent less than a concrete block made of gravel, sand and cement.

Based on the above information that you apparently provided to OEPA, OEPA believes: that "...the SBM appears to be a material that imparts some desirable characteristics to the blocks and [sic] has the potential to constitute the legitimate recycling of SBM as an ingredient..."; and that "...the SBM would not be a waste, according to Ohio Administrative Code (OAC) rule 3745-51-02(E)(1)<sup>12</sup>, if used and managed as described in the information provided by...[USTC]." However, OEPA warns about the prohibition on the use of the blocks in other than aboveground applications, and expresses the following two additional concerns about the subject proposal:

---

<sup>12</sup> The cited provision consists of three "paragraphs", (E)(1)(a), (E)(1)(b), and (E)(1)(c), which are essentially the same as relevant federal law, namely Title 40, Code of Federal Regulations (40 CFR) section 261.2(e)(1)(i), (e)(1)(ii), and (e)(1)(iii), respectively. Although it did not cite a specific paragraph, the OEPA letter refers to "...recycling of SBM as an ingredient", presumably based on information you provided in a letter to OEPA. That description best fits Ohio's paragraph (E)(1)(a) and its federal counterpart, 40 CFR section 261.2(e)(1)(i). Curiously, information you provided in your letter to DTSC refers to the SBM "...as a substitute ingredient", a designation which better fits Ohio's paragraph (E)(1)(b) and its federal counterpart, 40 CFR section 261.2(e)(1)(ii).

Mr. Raymond F. Williams

August 4, 2004

Page 6

- o First, OEPA does not know whether the blocks will actually be purchased and used by the construction industry. If they are not, then OEPA will obviously conclude that the subject proposal is not legitimate recycling of SBM.
- o Second, OEPA has determined that USTC's analytical testing of SBM and of "sample masonry concrete blocks" made with SBM "...did not correctly demonstrate the leachable amounts of...[chromium, lead, and cadmium] contained in SBM and the resulting block [sic]...", due to unspecified "...problems with methodology". Consequently, OEPA has required USTC to perform additional analytical testing on a regular basis for a period of one year (presumably from February 26, 2003 to February 26, 2004), as set forth in the OEPA letter.

### **Status of the Material Under Federal Law**

Under federal law, the SBM would (at a minimum) presumably exhibit the federal characteristic of toxicity as described in Title 40, Code of Federal Regulations (40 CFR) section 261.24, due to the presence of cadmium, chromium, and/or lead at hazardous concentration(s), and would be a "spent material" as defined in 40 CFR section 261.1(c)(1). If recycled as USTC proposes and if all applicable conditions are met, the SBM would be excluded under 40 CFR section 261.2(e)(1)(ii) from the 40 CFR section 261.2 definition of "solid waste" and hence from the 40 CFR section 261.3 definition of "hazardous waste", because the SBM would presumably be used or reused as an effective substitute for commercial products such as sand, gravel and limestone in the manufacture of blocks destined solely for aboveground use in commercial construction. Although your letter provides no documentation from the United States Environmental Protection Agency (U.S. EPA) or any other relevant government agency about the regulatory status of the SBM if recycled as USTC proposes, the OEPA letter provides such documentation from USTC's home state where the SBM recycling process would actually take place. Since U.S. EPA has apparently authorized the State of Ohio "...to administer and enforce a hazardous waste management program in lieu of the Federal [sic] program..." in that state,<sup>13</sup> and since the OEPA letter conditionally concludes that the SBM would not be a waste if recycled as USTC proposes, DTSC has, for purposes of this letter, assumed that the OEPA letter's conclusion would be correct and that the SBM would indeed be excluded under 40 CFR section 261.2(e)(1)(ii) from federal regulation as a solid, and hence as a hazardous, waste if recycled as USTC proposes.

### **Status of the Material Under State Law**

Under State law, the SBM would (at a minimum) presumably exhibit the State characteristic of toxicity as described in Title 22, California Code of Regulations (22

---

<sup>13</sup> See 40 CFR sections 272.1800 and 272.1801(a)(1). The latter section cites OAC Volume 4, Chapter 3745, Rules 50-44(C)(8) through 51-03(C)(2)(b)(ii), which should include Rule 51-02(E)(1) cited in the OEPA letter.

CCR) section 66261.24, due to the presence of cadmium, chromium, and/or lead at hazardous concentration(s), and would be a "spent material" as defined in 22 CCR section 66260.10. If recycled as proposed and if all applicable conditions are met, the SBM would be excluded under Health and Safety Code (HSC) section 25143.2(b)(2) from classification as "waste", because the SBM would presumably be used or reused as a safe and effective substitute for commercial products such as sand, gravel and limestone in the manufacture of blocks destined solely for aboveground use in commercial construction.

The applicable conditions of the HSC section 25143.2(b)(2) exclusion would be as follows:

- o The recyclable material (i.e., the SBM) would have to be used or reused as a safe and effective substitute for a commercial product (e.g., sand, gravel and/or limestone).
- o The recyclable material could not be reclaimed.
- o None of the limitations in HSC section 25143.2(e) could supersede the exclusion; one of those limitations is the HSC section 25143.2(e)(1) prohibition on use constituting disposal.<sup>14</sup> DTSC finds disturbing, and solicits relevant documentation in support of, USTC's statement, "Material containing hazardous constituents will also be used in... [unspecified] lawn and garden products, as these were ruled to be incidental contact with the land and therefore not in violation of the 'applied to the land' provision even in the most conservative sense."<sup>15</sup> Absent such documentation originating from DTSC or one of its predecessor entities, DTSC hereby limits the scope of this letter to the use or reuse of SBM solely as a safe and effective substitute for commercial products such as sand, gravel and limestone in the manufacture of blocks destined only for aboveground use in commercial construction. Present such documentation originating from DTSC or one of its predecessor entities, DTSC hereby expresses its intent to revisit the subject(s) at issue in that documentation.
- o The record keeping and related requirements of HSC section 25143.2(f) would have to be met.
- o The applicable requirements of HSC section 25143.9 would have to be met.

Note that the reporting requirements of HSC section 25143.10 might also apply.

---

<sup>14</sup> See the copy of the letter cited in Footnote No. 16 of this response to your letter.

<sup>15</sup> See Tab No. 3 of the enclosures.

Mr. Raymond F. Williams  
August 4, 2004

Page 8

Nevertheless, DTSC shares the concern that the OEPA letter expresses about the marketability of the blocks, regardless of the copies of six letters-of-interest that accompanied your letter.<sup>16</sup> However, the OEPA letter does not explicitly establish either: the minimum quantity (if any) of blocks that must actually be purchased and used by the construction industry in order for USTC to demonstrate legitimate recycling of SBM; or the maximum leachable concentration(s) of chromium, lead, and/or cadmium allowed in the tested materials in order for USTC to (presumably) demonstrate legitimate recycling of SBM.<sup>17</sup>

DTSC also shares the concern that the OEPA letter expresses about the validity of USTC's analytical testing of the SBM and of "sample masonry concrete blocks" made with SBM. Accordingly, DTSC has conditioned this response to your letter on USTC's compliance with OEPA's required additional analytical testing as set forth in the OEPA letter, and on OEPA's conclusions regarding the results of that testing.

In summary, the SBM recycled via USTC's proposed process would qualify for conditional exclusion from classification as "waste" under the HSC section 25143.2 provisions cited above. You should ensure that all persons who manage the SBM are familiar with the conditions and requirements of those provisions.

If you have questions regarding this letter or the enclosure, please call me at (916) 445-2625.

Sincerely,



Karl Palmer, Chief  
Regulatory Program Development Branch

Enclosure

cc: See next page

---

<sup>16</sup>One of those copies (under Tab No. 5 of the enclosures), namely the copy of a November 19, 2002 letter from Mr. Matt Monroe of Dorffer-Monroe Homes, Incorporated, addressed to you, states that "...we would be interested in buying the block [sic] produced by...[USTC] for our foundations, and other masonry work." Unfortunately, that copy apparently contradicts the following three claims/ restrictions that your letter makes regarding the proposed disposition of USTC's blocks composed of SBM containing a hazardous constituent at hazardous concentration: (1) that the blocks would only be used in aboveground applications; (2) that the blocks could only be used in aboveground applications, due to their "split-face"; and (3) that the blocks would only be used in commercial construction (presumably such a designation would exclude residential construction). [The first two of the three claims/ restrictions are traceable to a State hazardous waste recycling law requirement, namely HSC section 25143.2(e)(1); the third is not.] Furthermore, the authors of the other five copies mention nothing about the existence of such claims/ restrictions, if the authors were to purchase and use the blocks in their respective construction projects.

<sup>17</sup>Perhaps OEPA has addressed such performance standards in a subsequent communication with USTC?

Mr. Raymond F. Williams  
August 4, 2004  
Page 9

cc: Mr. Rich Vaille, Chief  
State Programs Compliance Branch  
U.S. Environmental Protection Agency  
Region IX (H-4)  
75 Hawthorne Street  
San Francisco, California 94105

Ms. Fran Schultz  
Compliance, Monitoring and Enforcement Section  
U.S. Environmental Protection Agency  
Region IX (WST-3-1)  
75 Hawthorne Street  
San Francisco, California 94105

Mr. Kim Wilhelm, P.E., Chief  
Statewide Compliance Division  
Department of Toxic Substances Control  
8800 Cal Center Drive, Floor 1  
Sacramento, California 95826

Ms. Peggy Harris, P.E., Chief  
Regulatory and Program Development Division  
Department of Toxic Substances Control  
1001 "I" Street, 11<sup>th</sup> Floor  
P.O. Box 806  
Sacramento, California 95812-0806

Mr. Charles Corcoran, Chief  
Waste Identification and Recycling Section  
Department of Toxic Substances Control  
1001 "I" Street, 11<sup>th</sup> Floor  
P.O. Box 806  
Sacramento, California 95812-0806

Mr. Eric Workman  
Waste Identification and Recycling Section  
Department of Toxic Substances Control  
1001 "I" Street, 11<sup>th</sup> Floor  
P.O. Box 806  
Sacramento, California 95812-0806

April 2004

# Department of Toxic Substances Control

HEALTH AND SAFETY  
California Code Excerpts  
2003

definitions shall apply:

(A) "Wastes from the extraction, beneficiation, and processing of ores and minerals" means any of the following:

(i) Soil, waste rock, overburden, and any other solid, semisolid, or liquid natural materials that are removed, unearthed, or otherwise displaced as a result of excavating or recovering an ore or a mineral.

(ii) Residuals of ores or minerals after those ores or minerals have been removed, unearthed, or otherwise displaced from their natural sites and physically or chemically treated or otherwise managed in order to separate or concentrate the commercial product present in the ore or mineral, or processed to produce a final marketable product.

(B) "Minerals" has the same meaning as defined in Section 2005 of the Public Resources Code.

(Amended by Stats. 1991, Ch. 174, Sec. 1.)

25143.1.5. (a) For purposes of this section, "wood waste" includes poles, crossarms, pilings, fence posts, lumber, support timbers, flume lumber, and cooling tower lumber.

(b) Any wood waste, previously treated with a preservative, that has been removed from electric, gas, or telephone service, is exempt from the requirements of this chapter if all of the following conditions are met:

(1) The wood waste is not subject to regulation as a hazardous waste under the federal act.

(2) The wood waste is disposed of in a composite-lined portion of a municipal solid waste landfill that meets any requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code.

(3) The solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the California regional water quality control board pursuant to Division 7 (commencing with Section 13000) of the Water Code.

(Added by Stats. 1995, Ch. 670, Sec. 1. Effective January 1, 1996.)

→ 25143.2. (a) Recyclable materials are subject to this chapter and the regulations adopted by the department to implement this chapter that apply to hazardous wastes, unless the department issues a variance pursuant to Section 25143, or except as provided otherwise in subdivision (b), (c), or (d) or in the regulations adopted by the department pursuant to Sections 25150 and 25151.

(b) Except as otherwise provided in subdivisions (e), (f), and (g), recyclable material that is managed in accordance with Section 25143.9 and is or will be recycled by any of the following methods shall be excluded from classification as a waste:

(1) Used or reused as an ingredient in an industrial process to make a product if the material is not being reclaimed.

(2) Used or reused as a safe and effective substitute for commercial products if the material is not being reclaimed.

(3) Returned to the original process from which the material was generated, without first being reclaimed, if the material is returned as a substitute for raw material feedstock, and the process uses raw materials as principal feedstocks.

(c) Except as otherwise provided in subdivision (e), any

recyclable material may be recycled at a facility that is not authorized by the department pursuant to the applicable hazardous waste facilities permit requirements of Article 9 (commencing with Section 25200) if either of the following requirements is met:

(1) The material is a petroleum refinery waste containing oil that is converted into petroleum coke at the same facility at which the waste was generated unless the resulting coke product would be identified as a hazardous waste under this chapter.

(2) The material meets all of the following conditions:

(A) The material is recycled and used at the same facility at which the material was generated.

(B) The material is recycled within the applicable generator accumulation time limits specified in Section 25123.3 and the regulations adopted by the department pursuant to paragraph (1) of subdivision (b) of Section 25123.3.

(C) The material is managed in accordance with all applicable requirements for generators of hazardous wastes under this chapter and regulations adopted by the department.

(d) Except as otherwise provided in subdivisions (e), (f), (g), and (h), recyclable material that meets the definition of a non-RCRA hazardous waste in Section 25117.9, is managed in accordance with Section 25143.9, and meets or will meet any of the following requirements is excluded from classification as a waste:

(1) The material can be shown to be recycled and used at the site where the material was generated.

(2) The material qualifies as one or more of the following:

(A) The material is a product that has been processed from a hazardous waste, or has been handled, at a facility authorized by the department pursuant to the facility permit requirements of Article 9 (commencing with Section 25200) to process or handle the material, if the product meets both of the following conditions:

(i) The product does not contain constituents, other than those for which the material is being recycled, that render the material hazardous under regulations adopted pursuant to Sections 25140 and 25141.

(ii) The product is used, or distributed or sold for use, in a manner for which the product is commonly used.

(B) The material is a petroleum refinery waste containing oil that is converted into petroleum coke at the same facility at which the waste was generated, unless the resulting coke product would be identified as a hazardous waste under this chapter.

(C) The material is oily waste, used oil, or spent nonhalogenated solvent that is managed by the owner or operator of a refinery that is processing primarily crude oil and is not subject to permit requirements for the recycling of used oil, of a public utility, or of a corporate subsidiary, corporate parent, or subsidiary of the same corporate parent of the refinery or public utility, and meets all of the following requirements:

(i) The material is either burned in an industrial boiler, an industrial furnace, an incinerator, or a utility boiler that is in compliance with all applicable federal and state laws, or is recombined with normal process streams to produce a fuel or other refined petroleum product.

(ii) The material is managed at the site where it was generated; managed at another site owned or operated by the generator, a corporate subsidiary of the generator, a subsidiary of the same entity of which the generator is a subsidiary, or the corporate parent

of the generator; or, if the material is generated in the course of oil or gas exploration or production, managed by an unrelated refinery receiving the waste through a common pipeline.

(iii) The material does not contain constituents, other than those for which the material is being recycled, that render the material hazardous under regulations adopted pursuant to Sections 25140 and 25141, unless the material is an oil-bearing material or recovered oil that is managed in accordance with subdivisions (a) and (c) of Section 25144 or unless the material is used oil removed from equipment, vehicles, or engines used primarily at the refinery where it is to be used to produce fuels or other refined petroleum products and the used oil is managed in accordance with Section 279.22 of Title 40 of the Code of Federal Regulations prior to insertion into the refining process.

(D) The material is a fuel that is transferred to, and processed into, a fuel or other refined petroleum product at a petroleum refinery, as defined in paragraph (4) of subdivision (a) of Section 25144, and meets one of the following requirements:

(i) The fuel has been removed from a fuel tank and is contaminated with water or nonhazardous debris, of not more than 2 percent by weight, including, but not limited to, rust or sand.

(ii) The fuel has been unintentionally mixed with an unused petroleum product.

(3) The material is transported between locations operated by the same person who generated the material, if the material is recycled at the last location operated by that person and all of the conditions of clauses (i) to (vi), inclusive, of subparagraph (A) of paragraph (4) are met. If requested by the department or by any official authorized to enforce this section pursuant to subdivision (a) of Section 25180, a person handling material subject to this paragraph, within 15 days from the date of receipt of the request, shall supply documentation to show that the requirements of this paragraph have been satisfied.

(4) (A) The material is transferred between locations operated by the same person who generated the material, if the material is to be recycled at an authorized offsite hazardous waste facility and if all of the following conditions are met:

(i) The material is transferred by employees of that person in vehicles under the control of that person or by a registered hazardous waste hauler under contract to that person.

(ii) The material is not handled at any interim location.

(iii) The material is not held at any publicly accessible interim location for more than four hours unless required by other provisions of law.

(iv) The material is managed in compliance with this chapter and the regulations adopted pursuant to this chapter prior to the initial transportation of the material and after the receipt of the material at the last location operated by that person. Upon receipt of the material at the last location operated by that person, the material shall be deemed to have been generated at that location.

(v) All of the following information is maintained in an operating log at the last location operated by that person and kept for at least three years after receipt of the material at that location:

(I) The name and address of each generator location contributing material to each shipment received.

(II) The quantity and type of material contributed by each

generator to each shipment of material.

(III) The destination and intended disposition of all material shipped offsite or received.

(IV) The date of each shipment received or sent offsite.

(vi) If requested by the department, or by any law enforcement official, a person handling material subject to this paragraph, within 15 days from the date of receipt of the request, shall supply documentation to show that the requirements of this paragraph have been satisfied.

(B) For purposes of paragraph (3) and subparagraph (A) of this paragraph, "person" also includes corporate subsidiary, corporate parent, or subsidiary of the same corporate parent.

(C) Persons that are a corporate subsidiary, corporate parent, or subsidiary of the same corporate parent, and that manage recyclable materials under paragraph (3) or subparagraph (A) of this paragraph, are jointly and severally liable for any activities excluded from regulation pursuant to this section.

(5) The material is used or reused as an ingredient in an industrial process to make a product if the material meets all of the following requirements:

(A) The material is not a wastewater that meets all of the following criteria:

(i) The wastewater is a non-RCRA hazardous waste.

(ii) The wastewater contains more than 75 parts per million of total petroleum hydrocarbons, as determined by use of United States Environmental Protection Agency Method 1664, Revision A for Silica Gel Treated N-Hexane Extractable Material.

(iii) The wastewater has been transported offsite to a facility, that is not a publicly owned treatment works, a facility owned by the generator, or a corporate subsidiary, corporate parent, or a subsidiary of the same corporate parent of the generator.

(B) Any discharges to air from the treatment of the material by the procedures specified in subparagraph (C) do not contain constituents that are hazardous wastes pursuant to the regulations of the department and are in compliance with applicable air pollution control laws.

(C) The material is not being treated except by one or more of the following procedures:

(i) Filtering.

(ii) Screening.

(iii) Sorting.

(iv) Sieving.

(v) Grinding.

(vi) Physical or gravity separation without the addition of external heat or any chemicals.

(vii) pH adjustment.

(viii) Viscosity adjustment.

(6) The material is used or reused as a safe and effective substitute for commercial products, if the material meets all of the following requirements:

(A) The material is not a wastewater that meets all of the following criteria:

(i) The wastewater is a non-RCRA hazardous waste.

(ii) The wastewater contains more than 75 parts per million of total petroleum hydrocarbons, as determined by use of United States Environmental Protection Agency Method 1664, Revision A for Silica Gel Treated N-Hexane Extractable Material.

(iii) The wastewater has been transported offsite to a facility that is not a publicly owned treatment works, or a facility owned by the generator, or a corporate subsidiary, corporate parent, or a subsidiary of the same corporate parent of the generator.

(B) Any discharges to air from the treatment of the material by the procedures specified in subparagraph (C) do not contain constituents that are hazardous wastes pursuant to the regulations of the department and the discharges are in compliance with applicable air pollution control laws.

(C) The material is not being treated, except by one or more of the following procedures:

(i) Filtering.

(ii) Screening.

(iii) Sorting.

(iv) Sieving.

(v) Grinding.

(vi) Physical or gravity separation without the addition of external heat or any chemicals.

(vii) pH adjustment.

(viii) Viscosity adjustment.

(7) The material is a chlorofluorocarbon or hydrochlorofluorocarbon compound or a combination of chlorofluorocarbon or hydrochlorofluorocarbon compounds, is being reused or recycled, and is used in heat transfer equipment, including, but not limited to, mobile air-conditioning systems, mobile refrigeration, and commercial and industrial air-conditioning and refrigeration systems, used in fire extinguishing products, or contained within foam products.

(e) Notwithstanding subdivisions (b), (c), and (d), all of the following recyclable materials are hazardous wastes and subject to full regulation under this chapter, even if the recycling involves use, reuse, or return to the original process as described in subdivision (b), and even if the recycling involves activities or materials described in subdivisions (c) and (d):

(1) Materials that are a RCRA hazardous waste, as defined in Section 25120.2, used in a manner constituting disposal, or used to produce products that are applied to the land, including, but not limited to, materials used to produce a fertilizer, soil amendment, agricultural mineral, or an auxiliary soil and plant substance.

(2) Materials that are a non-RCRA hazardous waste, as defined in Section 25117.9, and used in a manner constituting disposal or used to produce products that are applied to the land as a fertilizer, soil amendment, agricultural mineral, or an auxiliary soil and plant substance. The department may adopt regulations to exclude materials from regulation pursuant to this paragraph.

(3) Materials burned for energy recovery, used to produce a fuel, or contained in fuels, except materials exempted under paragraph (1) of subdivision (c) or excluded under subparagraph (B), (C), or (D) of paragraph (2) of subdivision (d).

(4) Materials accumulated speculatively.

(5) Materials determined to be inherently wastelike pursuant to regulations adopted by the department.

(6) Used or spent etchants, stripping solutions, and plating solutions that are transported to an offsite facility operated by a person other than the generator and either of the following applies:

(A) The etchants or solutions are no longer fit for their

originally purchased or manufactured purpose.

(B) If the etchants or solutions are reused, the generator and the user cannot document that they are used for their originally purchased or manufactured purpose without prior treatment.

(7) Used oil, as defined in subdivision (a) of Section 25250.1, unless one of the following applies:

(A) The used oil is excluded under subparagraph (B) or (C) of paragraph (2) of subdivision (d), paragraph (4) of subdivision (d), subdivision (b) of Section 25250.1, or Section 25250.3, and is managed in accordance with the applicable requirements of Part 279 (commencing with Section 279.1) of Title 40 of the Code of Federal Regulations.

(B) The used oil is used or reused on the site where it was generated or is excluded under paragraph (3) of subdivision (d), is managed in accordance with the applicable requirements of Part 279 (commencing with Section 279.1) of Title 40 of the Code of Federal Regulations, and is not any of the following:

(i) Used in a manner constituting disposal or used to produce a product that is applied to land.

(ii) Burned for energy recovery or used to produce a fuel unless the used oil is excluded under subparagraph (B) or (C) of paragraph (2) of subdivision (d).

(iii) Accumulated speculatively.

(iv) Determined to be inherently wastelike pursuant to regulations adopted by the department.

(f) (1) Any person who manages a recyclable material under a claim that the material qualifies for exclusion or exemption pursuant to this section shall provide, upon request, to the department, the California Environmental Protection Agency, or any local agency or official authorized to bring an action as provided in Section 25180, all of the following information:

(A) The name, street and mailing address, and telephone number of the owner or operator of any facility that manages the material.

(B) Any other information related to the management by that person of the material requested by the department, the California Environmental Protection Agency, or the authorized local agency or official.

(2) Any person claiming an exclusion or an exemption pursuant to this section shall maintain adequate records to demonstrate to the satisfaction of the requesting agency or official that there is a known market or disposition for the material, and that the requirements of any exemption or exclusion pursuant to this section are met.

(3) For purposes of determining that the conditions for exclusion from classification as a waste pursuant to this section are met, any person, facility, site, or vehicle engaged in the management of a material under a claim that the material is excluded from classification as a waste pursuant to this section is subject to Section 25185.

(g) For purposes of Chapter 6.8 (commencing with Section 25300), recyclable materials excluded from classification as a waste pursuant to this section are not excluded from the definition of hazardous substances in subdivision (g) of Section 25316.

(h) Used oil that fails to qualify for exclusion pursuant to subdivision (d) solely because the used oil is a RCRA hazardous waste may be managed pursuant to subdivision (d) if the used oil is

also managed in accordance with the applicable requirements of Part 279 (commencing with Section 279.1) of Title 40 of the Code of Federal Regulations.

(Amended by Stats. 2001, Ch. 866, Sec. 1. Effective January 1, 2002.)

25143.3. The Environmental Protection Agency regulations regarding spent sulfuric acid as set forth in Section 261.4(a)(7) of Title 40 of the Code of Federal Regulations (50 Fed. Reg. 665) are the regulations of the department and shall remain in effect until the department adopts regulations regarding this subject. It is the intent of the Legislature that the regulations adopted by the department be at least equivalent to, and in substantial conformance with that Section 261.4(a)(7). Further, it is the intent of the Legislature that the department may define in the regulations the term "spent sulfuric acid" as it deems necessary to avoid sham recycling, as described on page 638 of Volume 50 of the Federal Register by the Environmental Protection Agency.

(Added by Stats. 1985, Ch. 1594, Sec. 7.)

25143.4. (a) The department shall adopt regulations pursuant to this section, which authorize the reuse of pulping liquors that are reclaimed in a pulping liquor recovery furnace, and which are equivalent to the regulations in Section 261.4 (a)(6) of Title 40 of the Code of Federal Regulations.

Until the department adopts these regulations, the regulations adopted by the Environmental Protection Agency regarding pulping liquors that are reclaimed in a pulping liquor recovery furnace and then reused in the pulping process, as set forth in Section 261.4 (a)(6) of Title 40 of the Code of Federal Regulations, shall be deemed to be the regulations of the department.

(b) To the extent consistent with the federal act, and notwithstanding any other provision of law, organic materials, including, but not limited to, crude sulfate turpentine and methanol, that are derived from wood processed at kraft pulping mills to produce wood pulp, may be burned as a fuel by the mill which produced the materials, without obtaining a hazardous waste facilities permit or other grant of authorization from the department, if all of the following requirements are met:

(1) The materials exhibit only the characteristics listed in Section 66261.21 of, and paragraph (6) of subdivision (a) of Section 66261.24 of, Title 22 of the California Code of Regulations.

(2) The materials have heating values comparable to that of commercially available fuels.

(3) The materials are not contaminated or mixed with hazardous constituents from other processes.

(4) The combustion of the materials is regulated by an air pollution control district or air quality management district.

(Added by Stats. 1995, Ch. 401, Sec. 1. Effective January 1, 1996.)

25143.5. (a) Except as provided in subdivisions (d), (e) and (f), the department shall classify as nonhazardous waste any fly ash, bottom ash, and flue gas emission control residues, generated from a biomass combustion process, as defined in subdivision (g), if the combustion process will be adequately monitored and controlled so as to prevent the handling or the disposal of any waste in a manner

(Amended by Stats. 1996, Ch. 962, Sec. 2. Effective January 1, 1997.)

25143.6. On or before February 15, 1988, the following California regional water quality control boards shall prepare a list of class III landfills, as specified in Section 2533 of Title 23 of the California Administrative Code, including at least one landfill in each specified water quality control region which is authorized to accept and dispose of shredder waste in accordance with State Water Resources Control Board Resolution No. 87-22: San Francisco Bay Region, Central Valley Region, Los Angeles Region, Santa Ana Region, and San Diego Region.

(Amended by Stats. 1987, Ch. 1483, Sec. 1.)

25143.7. Waste containing asbestos may be disposed of at any landfill which has waste discharge requirements issued by the regional water quality control board which allow the disposal of such waste, provided that the wastes are handled and disposed of in accordance with the Toxic Substances Control Act (P.L. 94-469) and all applicable laws and regulations.

(Added by Stats. 1986, Ch. 1451, Sec. 8. Effective September 30, 1986.)

25143.8. (a) For purposes of this section, "cementitious material" means cement, cement kiln dust, clinker, and clinker dust.

(b) The test specified in the regulations adopted by the department with regard to a waste exhibiting the characteristic of corrosivity if representative samples of the waste are not aqueous and produce a solution with a pH less than or equal to 2 or greater than or equal to 12.5, as specified in paragraph (3) of subdivision (a) of Section 66261.22 of Title 22 of the California Code of Regulations, as that section read on January 1, 1996, shall not apply to waste cementitious material which is managed in accordance with applicable regulations administered by the California regional water quality control board at the cement manufacturing facility where it was generated.

(c) Cementitious material which is a nonaqueous waste, is managed in accordance with applicable regulations administered by the regional water quality control board at the cement manufacturing facility where it was generated, and would otherwise be classified as a hazardous waste based solely on the test specified in paragraph (3) of subdivision (a) of Section 66261.22 of Title 22 of the California Code of Regulations, as that section read on January 1, 1996, is excluded from classification as a hazardous waste pursuant to this chapter.

(Added by Stats. 1995, Ch. 847, Sec. 1. Effective January 1, 1996.)

→ 25143.9. A recyclable material shall not be excluded from classification as a waste pursuant to subdivision (b) or (d) of Section 25143.2, unless all of the following requirements are met:

(a) If the material is held in a container or tank, the container or tank is labeled, marked, and placarded in accordance with the department's hazardous waste labeling, marking, and placarding requirements which are applicable to generators, except that the container or tank shall be labeled or marked clearly with the words "Excluded Recyclable Material" instead of the words "Hazardous Waste,"

and manifest document numbers are not applicable. If the material is used oil, the containers, aboveground tanks, and fill pipes used to transfer oil into underground storage tanks shall also be labeled or clearly marked with the words "Used Oil".

(b) The owner or operator of the business location where the material is located has a business plan that meets the requirements of Section 25504, including, but not limited to, emergency response plans and procedures, as described in subdivision (b) of Section 25504, which specifically address the material or that meet the department's emergency response and contingency requirements which are applicable to generators of hazardous waste.

(c) The material shall be stored and handled in accordance with all local ordinances and codes, including, but not limited to, fire codes, governing the storage and handling of the hazardous material. If a local jurisdiction does not have an ordinance or code regulating the storage of the material, including, but not limited to, an ordinance or code requiring secondary containment for hazardous material storage areas, the material shall be stored in tanks, waste piles, or containers meeting the department's interim status regulations establishing design standards applicable to tanks, waste piles, or containers storing hazardous waste.

(d) If the material is being exported to a foreign country, the person exporting the material shall meet the requirements of Section 25162.1.

(Amended by Stats. 1994, Ch. 1154, Sec. 2. Effective January 1, 1995.)

25143.10. (a) Except as provided in subdivisions (e) and (f), any person who recycles more than 100 kilograms per month of recyclable material under a claim that the material qualifies for exclusion or exemption pursuant to Section 25143.2 shall, on or before July 1, 1992, and every two years thereafter, provide to the local officer or agency authorized to enforce this section pursuant to subdivision (a) of Section 25180, all of the following information, using the format established pursuant to subdivision (d), in writing:

(1) The name, site address, mailing address, and telephone number of the owner or operator of any facility that recycles the material.

(2) The name and address of the generator of the recyclable material.

(3) Documentation that the requirements of any exemptions or exclusions pursuant to Section 25143.2 are met, including, but not limited to, all of the following:

(A) Where a person who recycles the material is not the same person who generated the recyclable material, documentation that there is a known market for disposition of the recyclable material and any products manufactured from the recyclable material.

(B) Where the basis for the exclusion is that the recyclable material is used or reused to make a product or as a safe and effective substitute for a commercial product, a general description of the material and products, identification of the constituents or group of constituents, and their approximate concentrations, that would render the material or product hazardous under the regulations adopted pursuant to Sections 25140 and 25141, if it were a waste, and the means by which the material is beneficially used.

(b) Except as provided in Section 25404.5, the governing

body of a city or county may adopt an ordinance or resolution pursuant to Section 101325 to pay for the actual expenses of the activities carried out by local officers or agencies pursuant to subdivision (a).

(c) If a person who recycles material under a claim that the material qualifies for exclusion or exemption pursuant to Section 25143.2 is not the same person who generated the recyclable material, the person who recycles the material shall, on or before July 1, 1992, and every two years thereafter, provide a copy of the information required to be submitted pursuant to subdivision (a) to the generator of the recyclable material.

(d) The person providing the information required by subdivision (a) shall use a format developed by the California Conference of Directors of Environmental Health in consultation with the department. The department shall distribute the format to local officers and agencies authorized to enforce this section pursuant to subdivision (a) of Section 25180.

(e) A recyclable material generated in a product or raw material storage tank, a product or raw material transport vehicle or vessel, a product or raw material pipeline, or in a manufacturing process unit or an associated nonwaste treatment manufacturing unit is not subject to the requirements of this section, until the recyclable material exits the unit in which it was generated, unless the unit is a surface impoundment, or unless the material remains in the unit for more than 90 days after the unit ceases to be operated for manufacturing, storage, or transportation of the product or raw material.

(f) A local officer or agency authorized to enforce this section pursuant to subdivision (a) of Section 25180 may exempt from subdivision (a) any person who operates antifreeze recycling units or solvent distillation units, where the recycled material is returned to productive use at the site of generation, or may require less information than that required under subdivision (a) from the person.

(Amended (as amended by Stats. 1995, Ch. 639) by Stats. 1996, Ch. 1023, Sec. 230. Effective September 29, 1996.)

25143.11. (a) The department shall, on or before January 1, 1997, to the extent that it is consistent with the federal act and the protection of the public health, safety, and the environment, adopt regulations exempting secondary materials from this chapter. Those regulations shall be adopted pursuant to Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. In adopting the regulations, the department shall consider the restrictions listed in paragraph (8) of subsection (a) of Section 261.4 of Title 40 of the Code of Federal Regulations which apply to the exclusion of secondary materials from regulation under the federal act.

(b) For purposes of this section, "secondary materials" means materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process.

(Added by Stats. 1995, Ch. 625, Sec. 1. Effective January 1, 1996.)

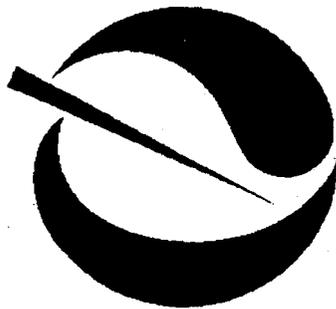
25143.12. Notwithstanding any other provision of law, debris that is contaminated only with crude oil or any of its fractions is exempt from regulation under this chapter if all of the following conditions are met:

*Revised*  
-7-2-04

**TITLE 22**

**CALIFORNIA**  
**CODE OF**  
**REGULATIONS**

**Division 4.5. Environmental Health Standards  
For the Management of Hazardous Waste**



**State of California**  
**California Environmental Protection Agency**  
**Department of Toxic Substances Control**

"Small quantity commercial source" means a business which generates less than 100 kilograms of household waste, as defined in paragraph (1) of subdivision (b) of Section 261.4 of Title 40 of the Code of Federal Regulations, or which meets the criteria for conditionally exempt small quantity generators specified in Section 261.5 of Title 40 of the Code of Federal Regulations, or, if the hazardous waste is perchlorethylene, a business which generates less than 50 kilograms of hazardous waste per month and meets the criteria set forth in Sections 261.4 or 261.5 of Title 40 of the Code of Federal Regulations.

"Small quantity generator" means a generator who generates less than 1,000 kg of hazardous waste in a calendar month.

"Soil" means unconsolidated earth material composing the superficial geologic strata (material overlying bedrock), consisting of clay, silt, sand, or gravel size particles as classified by the U.S. Natural Resources Conservation Service, or a mixture of such materials with liquids, sludges or solids which is inseparable by simple mechanical removal processes and is made up primarily of soil by volume based on visual inspection. Any deliberate mixing of prohibited hazardous waste with soil that changes its treatment classification (i.e., from waste to contaminated soil) is not allowed under the dilution prohibition in section 66268.3 of this division.

"Soil-pore liquid" means the liquid contained in openings between particles of soil in the unsaturated zone.

"Solid Waste Management Unit" means any unit at a hazardous waste facility from which hazardous constituents might migrate, irrespective of whether the units were intended for the management of wastes, including but not limited to: containers, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators and underground injection wells.

"Soluble threshold limit concentration" or "STLC" means the concentration of a solubilized and extractable bioaccumulative or persistent toxic substance which, if equaled or exceeded in a waste or waste extract determined pursuant to Appendix II of chapter 11 of this division renders the waste hazardous.

"Solvent extraction operation" means an operation or method of separation in which a solid or solution is contacted with a liquid solvent (the two being mutually insoluble) to preferentially dissolve and transfer one or more components into the solvent.

"Sorb" means to either adsorb or absorb, or both.

"Sorbent" means a material that is used to soak up free liquids by either adsorption or absorption, or both. See also "Sorb".

"Special waste" means a waste which is a hazardous waste only because it contains an inorganic substance or substances which cause it to pose a chronic toxicity hazard to human health or the environment and which meets all of the criteria and requirements of section 66261.122 and has been classified a special waste pursuant to section 66261.124.

"Spent material" is any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing.

For the purposes of chapters 14 and 15, "Start-up" means the setting in operation of a hazardous waste management unit or control device for any purpose.

"State/EPA Agreement" means an agreement between the Regional Administrator and the Department which coordinates EPA and State activities, responsibilities and programs.

"Steam stripping operation" means a distillation operation in which vaporization of the volatile constituents of a liquid mixture takes place by the introduction of steam directly into the charge.

"STLC" see "Soluble threshold limiting concentration."

"Storage" means the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of or stored elsewhere.

"Sudden accidental occurrence" means an unforeseen and unexpected accident which is not continuous or repeated in nature and results in bodily injury, property damage or environmental degradation.

"Substantial business relationship" means the extent of a business relationship necessary under applicable State law to make a guarantee contract issued incident to that relationship valid and enforceable. A "substantial business relationship" must arise from a pattern of recent or ongoing business transactions, in addition the guarantee itself, such that a currently existing business relationship between the guarantor and the owner or operator is demonstrated to the satisfaction of the Department.

"Sump" means any pit or reservoir that meets the definition of tank and those troughs/trenches connected to it that serve to collect hazardous waste for transport to hazardous waste storage, treatment, or disposal facilities; except that as used in the landfill, surface impoundment, and waste pile rules, "sump" means any lined pit or reservoir that serves to collect liquids drained from a leachate collection and removal system or leak detection system for subsequent removal from the system.

"Surface impoundment" or "impoundment" means a facility or part of a facility which is a natural topographic depression, man-made excavation or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds and lagoons.

"Surge control tank" means a pipe or storage reservoir sufficient in capacity to contain the surging liquid discharge of the process tank to which it is connected.

"Surplus material" means an unused raw material or commercial product obtained by a person who intended to use or sell it, but who no longer needs it, and who transfers ownership of it to another person for use in a manner for which the material or product is commonly used. Surplus material is excess material. Surplus material is neither of the following:

by the test method specified in NACE Standard TM-01-69 as standardized in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd edition and updates (incorporated by reference, see section 66260.11) or an equivalent test method approved by the Department pursuant to 66260.21.

(b) A waste that exhibits the characteristic of corrosivity specified in subsection (a)(1) or (a)(2) of this section has the EPA Hazardous Waste Number of D002.

NOTE: Authority cited: Sections 25141, 25159, 58004 and 58012, Health and Safety Code. Reference: Sections 25117, 25120.2, 25141, 25159 and 25159.5, Health and Safety Code and 40 CFR Section 261.22.

HISTORY

1. New section filed 5-24-91; effective 7-1-91 (Register 91, No. 22).
2. Amendment of subsections (a)(1)-(4) and NOTE filed 10-13-98; operative 11-12-98 (Register 98, No. 42).

**§66261.23. Characteristic of Reactivity.**

(a) A waste exhibits the characteristic of reactivity if representative samples of the waste have any of the following properties:

- (1) it is normally unstable and readily undergoes violent change without detonating;
- (2) it reacts violently with water;
- (3) it forms potentially explosive mixtures with water;
- (4) when mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment;
- (5) it is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment;
- (6) it is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement;
- (7) it is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure;
- (8) it is a forbidden explosive as defined in 49 CFR section 173.51 (as amended April 20, 1987), or a Class A explosive as defined in 49 CFR section 173.53 (as amended April 5, 1967) or a Class B explosive as defined in 49 CFR section 173.88 (as amended May 19, 1980).

(b) A waste that exhibits the characteristic of reactivity has the EPA Hazardous Waste Number of D003.

NOTE: Authority cited: Sections 208, 25141 and 25159, Health and Safety Code. Reference: Sections 25117, 25120.2, 25141, 25159 and 25159.5, Health and Safety Code and 40 CFR Section 261.23.

HISTORY

1. New section filed 5-24-91; effective 7-1-91 (Register 91, No. 22).

**§66261.24. Characteristic of Toxicity.**

(a) A waste exhibits the characteristic of toxicity if representative samples of the waste have any of the following properties:

(1) when using the Toxicity Characteristic Leaching Procedure (TCLP), test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, third edition and Updates (incorporated by reference in section 66260.11 of this division), the extracts from representative samples of the waste contain any of the contaminants listed in Table I of this section at a concentration equal to or greater than the respective value given in that table unless the waste is excluded from classification as a solid waste or hazardous waste or is exempted from regulation pursuant to 40 CFR section 261.4. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Method 1311, is considered to be the extract for the purposes of this section;

(A) a waste that exhibits the characteristic of toxicity pursuant to subsection (a)(1) of this section has the EPA Hazardous Waste Number specified in Table I of this section which corresponds to the toxic contaminant causing it to be hazardous;

(B) Table I - Maximum Concentration of Contaminants for the Toxicity Characteristic:

EPA Hazardous Waste Number	Contaminant	Chemical Abstracts Service Number	Regulatory Level Mg/l
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0

EPA Hazardous Waste Number	Contaminant	Chemical Abstracts Service Number	Regulatory Level Mg/l
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.0 <sup>1</sup>
D024	m-Cresol	108-39-4	200.0 <sup>1</sup>
D025	p-Cresol	106-44-5	200.0 <sup>1</sup>
D026	Cresol		200.0 <sup>1</sup>
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.0 <sup>2</sup>

EPA Hazardous Waste Number	Contaminant	Chemical Abstracts Service Number	Regulatory Level Mg/l
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

<sup>1</sup> If o-, m- and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

<sup>2</sup> Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

(2) it contains a substance listed in subsections (a)(2)(A) or (a)(2)(B) of this section at a concentration in milligrams per liter of waste extract, as determined using the Waste Extraction Test (WET) described in Appendix II of this chapter, which equals or exceeds its listed soluble threshold limit concentration or at a concentration in milligrams per kilogram in the waste which equals or exceeds its listed total threshold limit concentration;

(A) Table II - List of Inorganic Persistent and Bioaccumulative Toxic Substances and Their Soluble Threshold Limit Concentration:

(STLC) and Total Threshold Limit Concentration (TTLC) Values.

Substance <sup>a,b</sup>	STLC mg/l	TTLC Wet-Weight mg/kg
Antimony and/or antimony compounds	15	500
Arsenic and/or arsenic compounds	5.0	500
Asbestos		1.0 (as percent)
Barium and/or barium compounds (excluding barite)	100	10,000 <sup>c</sup>
Beryllium and/or beryllium compounds	0.75	75
Cadmium and/or cadmium compounds	1.0	100
Chromium (VI) compounds	5	500
Chromium and/or chromium (III) compounds	5 <sup>d</sup>	2,500
Cobalt and/or cobalt compounds	80	8,000
Copper and/or copper compounds	25	2,500
Fluoride salts	180	18,000
Lead and/or lead compounds	5.0	1,000
Mercury and/or mercury compounds	0.2	20

Substance <sup>a,b</sup>	STLC mg/l	TTLCL Wet-Weight mg/kg
Molybdenum and/or molybdenum compounds	350	3,500 <sup>e</sup>
Nickel and/or nickel compounds	20	2,000
Selenium and/or selenium compounds	1.0	100
Silver and/or silver compounds	5	500
Thallium and/or thallium compounds	7.0	700
Vanadium and/or vanadium compounds	24	2,400
Zinc and/or zinc compounds	250	5,000

<sup>a</sup>STLC and TTLCL values are calculated on the concentrations of the elements, not the compounds.

<sup>b</sup>In the case of asbestos and elemental metals, the specified concentration limits apply only if the substances are in a friable, powdered or finely divided state. Asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

<sup>c</sup>Excluding barium sulfate.

<sup>d</sup>If the soluble chromium, as determined by the TCLP set forth in Appendix I of chapter 18 of this division, is less than 5 mg/l, and the soluble chromium, as determined by the procedures set forth in Appendix II of chapter 11, equals or exceeds 560 mg/l and the waste is not otherwise identified as a RCRA hazardous waste pursuant to section 66261.100, then the waste is a non-RCRA hazardous waste.

<sup>e</sup>Excluding molybdenum disulfide.

(B) Table III - List of Organic Persistent and Bioaccumulative Toxic Substances and Their Soluble Threshold Limit Concentration (STLC) and Total Threshold Limit Concentration (TTLCL) Values:

Substance	STLC mg/l	TTLCL Wet Weight mg/kg
Aldrin	0.14	1.4
Chlordane	0.25	2.5
DDT, DDE, DDD	0.1	1.0
2,4-Dichlorophenoxyacetic acid	10	100
Dieldrin	0.8	8.0
Dioxin (2,3,7,8-TCDD)	0.001	0.01
Endrin	0.02	0.2
Heptachlor	0.47	4.7
Kepone	2.1	21
Lead compounds, organic	--	13
Lindane	0.4	4.0
Methoxychlor	10	100
Mirex	2.1	21
Pentachlorophenol	1.7	17
Polychlorinated biphenyls (PCBs)	5.0	50
Toxaphene	0.5	5
Trichloroethylene	204	2,040
2,4,5-Trichlorophenoxypropionic acid	1.0	10

- (3) it has an acute oral LD<sub>50</sub> less than 5,000 milligrams per kilogram;
- (4) it has an acute dermal LD<sub>50</sub> less than 4,300 milligrams per kilogram;
- (5) it has an acute inhalation LC<sub>50</sub> less than 10,000 parts per million as a gas or vapor;
- (6) it has an acute aquatic 96-hour LC<sub>50</sub> less than 500 milligrams per liter when measured in soft water (total hardness 40 to 48 milligrams per liter of calcium carbonate) with fathead minnows (*Pimephales promelas*), rainbow trout (*Salmo gairdneri*) or golden shiners (*Notemigonus crysoleucas*) according to procedures described in Part 800 of the "Standard Methods for the Examination of Water and Wastewater (16th Edition)," American Public Health Association, 1985 and "Static Acute Bioassay Procedures for Hazardous Waste Samples," California Department of Fish and Game, Water Pollution Control Laboratory, revised November 1988 (incorporated by reference, see section 66260.11), or by other test methods or test fish approved by the Department, using test samples prepared or meeting the conditions for testing as prescribed in subdivisions (c) and (d) of Appendix II of this chapter, and solubilized, suspended, dispersed or emulsified by the cited procedures or by other methods approved by the Department;
- (7) it contains any of the following substances at a single or combined concentration equal to or exceeding 0.001 percent by weight:

- (A) 2-Acetylaminofluorene (2-AAF);
- (B) Acrylonitrile;
- (C) 4-Aminodiphenyl;
- (D) Benzidine and its salts;
- (E) bis (Chloromethyl) ether (BCME);
- (F) Methyl chloromethyl ether;
- (G) 1,2-Dibromo-3-chloropropane (DBCP);
- (H) 3,3'-Dichlorobenzidine and its salts (DCB);
- (I) 4-Dimethylaminoazobenzene (DAB);
- (J) Ethyleneimine (EL);
- (K) alpha-Naphthylamine (1-NA);
- (L) beta-Naphthylamine (2-NA);
- (M) 4-Nitrobiphenyl (4-NBP);
- (N) N-Nitrosodimethylamine (DMN);
- (O) beta-Propiolactone (BPL);
- (P) Vinyl chloride (VCM);

(8) it has been shown through experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties or persistence in the environment.

(b) A waste containing one or more materials which exhibit the characteristic of toxicity because the materials have the property specified in subsection (a)(5) of this section may be classified as nonhazardous pursuant to section 66260.200 if the waste does not exhibit any other characteristic of this article and is not listed in article 4 of this chapter and its head space vapor contains no such toxic materials in concentrations exceeding their respective acute inhalation LC<sub>50</sub> or their LC<sub>LO</sub>. The head space vapor of a waste shall be prepared, and two milliliters of it shall be sampled using a five milliliter gas-tight syringe, according to Method 5020 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 2nd edition, U.S. Environmental Protection Agency, 1982 (incorporated by reference, see section 66260.11). The quantity in milligrams of each material, which exhibits the characteristic of toxicity because it has the property specified in subsection (a)(5) of this section, in the sampling syringe shall be determined by comparison to liquid standard solutions according to the appropriate gas chromatographic procedures in Method 8010, 8015, 8020, 8030 or 8240 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd edition, U.S. Environmental Protection Agency, 1986 (incorporated by reference, see section 66260.11). The concentration of each material in the head space vapor shall be calculated using the following equation:

		Q <sub>A</sub>		29.8ml		1
C <sub>A</sub>	=		x		x	
		MW		mmole		2 x 10 <sup>-6</sup> M <sup>-1</sup>

where C (in parts per million) is the concentration of material A in head space vapor, Q (in milligrams) is the quantity of material A in sampling syringe and MW (in milligrams per millimole) is the molecular weight of material A. Where an acute inhalation LC<sub>50</sub> is not available, an LC<sub>50</sub> measured for another time (t) may be converted to an eight-hour value with the following equation:

$$\text{Eight-hour LC}_{50} = (t/8) \times (t\text{-hour LC}_{50}).$$

(c) A waste containing one or more materials which exhibit the characteristic of toxicity because the materials have either of the properties specified in subsection (a)(3) or (a)(4) of this section may be classified as nonhazardous pursuant to section 66260.200 if the waste does not exhibit any other characteristic of this article and is not listed in article 4 of this chapter and the calculated oral LD<sub>50</sub> of the waste mixture is greater than 5,000 milligrams per kilogram and the calculated dermal LD<sub>50</sub> is greater than 4,300 milligrams per kilogram by the following equation:

$$\text{Calculated oral or dermal LD}_{50} = \frac{100}{\text{_____}}$$

$$A_x = \frac{\sum_{x=1}^n \% A_x}{\sum_{x=1}^n \frac{E}{T_{A_x}}}$$

where  $\%A_x$  is the weight percent of each component in the waste mixture and  $T_{A_x}$  is the acute oral or dermal  $LD_{50}$  or the acute oral  $LD_{Lo}$  of each component.

NOTE: Authority cited: Sections 25141, 25159, 58004 and 58012, Health and Safety Code. Reference: Sections 25117, 25120.2, 25141, 25159 and 25159.5, Health and Safety Code and 40 CFR Section 261.24.

#### HISTORY

1. New section filed 5-24-91; effective 7-1-91 (Register 91, No. 22).
2. Amendment of table II filed 1-31-94; operative 1-31-94 (Register 94, No. 5).
3. Editorial correction of equation (Register 95, No. 36).
4. Amendment of subsection (a)(1) and NOTE filed 10-13-98; operative 11-12-98 (Register 98, No. 42).