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Tax Court of Arizona.
 ARIZONA DEPARTMENT OF REVENUE; State
 of Arizona
 v.
 CYPRUS SIERRITA CORPORATION.
 No. TX 92-00279.

Feb. 3, 1994.

Taxpayer argued that three chemicals, sulfuric acid, LIX, and Orfom SX-7, used to produce cathode copper from copper ore were exempt from use tax. The Arizona Tax Court, Schafer, J., held that chemicals functioned as machinery and equipment in extraction and plating of cathode copper and were not expendable materials and, therefore, chemicals were exempt from use tax.

Ordered accordingly.

West Headnotes

[1] Statutes 361 **188**

361 Statutes

361VI Construction and Operation
 361VI(A) General Rules of Construction
 361k187 Meaning of Language

361k188 k. In General. Most Cited
 Unless context of statute requires otherwise, terms will be given their ordinary meaning.

[2] Taxation 371 **3657**

371 Taxation

371IX Sales, Use, Service, and Gross Receipts
 Taxes

371IX(C) Transactions Taxable in General
 371k3655 Purpose of Use or Consumption
 as Affecting Taxability

371k3657 k. Manufacturing or Processing,
 Use or Consumption In; Incorporation in

New Product. Most Cited Cases

(Formerly 371k1245)

Three chemicals, sulfuric acid, LIX, and Orfom SX-7 used to produce cathode copper from copper ore were "machinery" and "equipment" within meaning of tax provision which exempts machinery and equipment from use tax, where chemicals were used in leaching phase and solvent extraction phase of plating of cathode copper. A.R.S. § 42-1409, subds. B, B, par. 1.

[3] Taxation 371 **3657**

371 Taxation

371IX Sales, Use, Service, and Gross Receipts
 Taxes

371IX(C) Transactions Taxable in General

371k3655 Purpose of Use or Consumption
 as Affecting Taxability

371k3657 k. Manufacturing or Processing,
 Use or Consumption In; Incorporation in
 New Product. Most Cited Cases

(Formerly 371k1245)

Three chemicals, sulfuric acid, LIX, and Orfom SX-7 used to produce cathode copper from copper ore were not "expendable materials" within meaning of use tax provision which states that "expendable materials" are not exempt from use tax, where, although some of chemicals were lost in system due to chemical reactions, entrainment, spillage, evaporation, and sampling, losses were small compared to their required replacement and chemicals were recycled at end of extraction and where chemicals were not accessories but, rather, integral parts of production machine. A.R.S. § 42-1409, subds. B, par. 1, C, C, pars. 1-4.

****872 *302** Atty. Gen. by Michael P. Worley,
 Phoenix, for plaintiff.

Fennemore Craig, P.C. by Paul J. Mooney, David
 T. Cox and Ray T. Harris, Phoenix, for defendant.

OPINION

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SCHAFFER, Judge.

The issue in this case is whether three chemicals, sulfuric acid, LIX, and Orfom SX-7, used to produce cathode copper from copper ore, are “machinery” or “equipment.” If they are, A.R.S. 42-1409(B)(1) exempts their cost from taxation.

The taxpayer, Cyprus Sierrita Corporation, is engaged in the business of producing copper from oxide copper ore and sulfide copper ore. The ores contain very low concentrations of copper; their bulk consists mainly of metallic oxides and non-metallic materials (referred to as “gangue”) that have no commercial value. To make the business profitable the copper must be extracted from the gangue-and that is accomplished with chemicals. The process involves three steps: (1) leaching, (2) solvent extraction, and (3) electrowinning. Here's how it works:

First, the ore is mined and collected into large mounds. Then a weak sulfuric acid solution, containing sulfate and hydrogen ions, is sprayed on the mounds and allowed to percolate down through the ore. As it does, things happen-molecules are released and exchanged, and hydrogen ions combine with oxygen ions to form water; copper ions in the ore bond with the sulfate ions in the acidic solution; and impurities (gangue) are released from the ore. When the solution gets to the bottom of the mounds it is changed, it now contains nascent copper. This new solution is sent to a solvent extraction plant where it is mixed and agitated with a solution of LIX and Orfom SX-7. Again molecules are released and exchanged. The result is a mix of copper in an organic solution and fluid with the same chemical composition of the original leach solution (with the addition of dissolved gangue and a small amount of residual copper ions). That mix separates into two layers; the leach solution is sent back to the mounds to leach again and the copper in the organic solution is mixed with an electrowinning solution (sulfuric acid). That mix again separates into two layers; the organic solution (once again LIX and Orfom SX-7 with only a small amount of residual

copper) is recycled within the solvent extraction plant and used again. The copper bearing electrowinning solution cycles to the electrowinning plant where an electric current is applied. The copper in the solution adheres to plates (copper plating) and the remaining fluid (sulfuric acid again) is recycled back to the solvent extraction plant to strip more copper.

Cyprus argues that the three chemicals (sulfuric acid, LIX and Orfom SX-7) are “machinery” or “equipment” exempt from Arizona's use tax under A.R.S. § 42-1409, subsection B(1). “Machinery” or “equipment” it maintains is nothing more than a collection of things brought together to perform useful functions as an integrated system; the system's parts do not have to be touched, felt, or even seen. The Department scoffs at that notion. The Department's position is that everyone knows what “machinery” or “equipment” is, and that it is not chemicals. And, even if it were, the chemicals here are “expendable materials” specifically subject to the use tax under subsection C(1) of section 42-1409.

The Court agrees with Cyprus; its chemicals are machinery and equipment, and they are not “expendable materials” under subsection C(1) of section 42-1409.

ANALYSIS

Exemption from Taxation

Arizona imposes a use tax upon “the storage, use or consumption in this state of tangible**873 *303 personal property.” A.R.S. § 42-1408(A). “Use” and “consumption” are defined as the exercise of any right or power over tangible personal property incidental to owning the property....” A.R.S. § 42-1401(8). Everyone agrees that Cyprus “uses” the chemicals in Arizona. Cyprus, however, claims that the chemicals are tax exempt under subsection B(1) of section 42-1409, because the chemicals are “machinery” or “equipment.”

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Section 42-1409, subsection B, provides an exemption from use tax for:

1. *Machinery, or equipment, used directly* in manufacturing, processing, fabricating, job printing, refining or *metallurgical operations*. The terms 'manufacturing', 'processing', 'fabricating', 'job printing', 'refining' and 'metallurgical' as used in this paragraph refer to and include those operations commonly understood within their ordinary meaning. *'Metallurgical operations' includes leaching, milling, precipitating, smelting and refining.*

A.R.S. § 42-1409(B)(1) (emphasis added). The Department concedes that the chemicals are "used directly" in "metallurgical operations," but disputes that the chemicals are machinery or equipment.

[1] Neither "machinery" nor "equipment" is defined by the Tax Code. Therefore, unless the context of the statute requires otherwise, the terms will be given their ordinary meaning. *State Tax Commission v. Peck*, 106 Ariz. 394, 476 P.2d 849 (1970); see also *Jim Click Ford, Inc. v. City of Tucson*, 133 Ariz. 97, 649 P.2d 714 (App.1982). Here the statute is clear when the words are read as they are ordinarily used.

"Machinery" is defined as "machines as a functioning unit." *Webster's Third New International Dictionary* 1354 (1981). "Machine" in turn is defined as:

[A]n assemblage of parts that are usually solid bodies but include in some cases fluid bodies or electricity in conductors and that transmit forces, motion and energy one to another in some predetermined manner and to some desired end.

Id. at 1353. *Webster's* also notes that the synonyms "machine, engine, apparatus, appliance"

signify, in common, a device, often complex, for doing work beyond human physical or mental limitations or faster than human hand or mind. Machine applies to a construction or organization whose parts are so connected and interrelated that it can be

set in motion and perform work as a unit.

Ibid.

[2] These chemicals are "machines" according to those definitions because they are an integral part of a complicated process, acting in predetermined manners to obtain a specific desired result—the plating of cathode copper. In the leaching phase, sulfuric acid is the "part" of the system which acts to release copper ions from the copper oxide. The LIX and Orfom SX-7 are the "parts" of the system used in the solvent extraction phase to extract the copper ions from the leaching solution and transfer the copper ions to the electrowinning solution where the copper may be plated in the electrowinning phase. Clearly, these chemicals function as part of the cathode copper plating "machinery" and as such are exempt from the use tax under section 42-1409, subsection B(1).

The chemicals also function as part of Cyprus' "equipment" as that term is commonly defined. *Webster's* defines "equipment" to include "the physical resources serving to equip a person or thing ... as: (1) the implements (as machinery or tools) used in an operation or activity." ^{FN1} In further defining "equipment," *Webster's* notes that the synonyms "equipment, apparatus, machinery, paraphernalia, outfit, tackle, gear, and material"

FN1. "Implement" is defined as "an article (as of apparel or furniture) serving to equip." *Webster* at 1134. *Webster's* also notes that implement "applies to anything, usually a contrivance, necessary to affect an end or perform a task."

can signify, in common, all the things used in a given work or useful in effecting a given end. Equipment usually covers everything except personnel needed for efficient operation or service.... Machinery **874 *304 covers all devices, means or agencies which permit a thing to function or accomplish an end.

Webster at 768. The chemicals fall within these

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common definitions of "equipment" thereby qualifying for tax exempt treatment under section 42-1409, subsection B(1).

Exclusion from Exemption

Subsection C of section 42-1409 lists things that are not exempt in subsection B—"expendable materials" is one of them. A.R.S. § 42-1409(C)(1).

The Department claims that even if the chemicals are machinery or equipment they are still taxable because they are expendable. Cyprus argues that the chemicals are not expendable. The Court agrees with Cyprus.

[3] The statute does not define "expendable materials." But in ordinary use the term means something that is expended, and expended means to "use up (material or force) in any operation." *The Compact Edition of the Oxford English Dictionary* 929 (1971). In that sense, these chemicals are not used up in the process of extraction. The sulfuric acid does not disappear during its cycle through the copper plating process; it is recycled. It is true that approximately 40% of the sulfuric acid is lost to the system due to its reaction with gangue, but that loss doesn't make the acid "expendable" since in an ideal system, one with no gangue, 100% of the acid could be continuously recycled. The LIX and Orfom SX-7 are continuously recycled through the system every 30 minutes, 24 hours a day. Small amounts are lost due to entrainment (failure to separate completely in the solvent extraction phase), crud (formation of solids), spillage, evaporation and sampling. But these losses are so small they required replacement of LIX and Orfom SX-7 only once every 18.5 months during the audit period.^{FN2} In sum, none of the chemicals were used up in the process.

FN2. The Department audited Cyprus for the period April 1986 through November 1989.

In addition, when "expendable materials" is read in

the context of the entire subsection C, it is clear that the legislature intended to deny exemption to those things that are ancillary to the extraction process. The subsection taxes janitorial equipment and hand tools (A.R.S. § 42-1409(C)(2)); office equipment, furniture and supplies (A.R.S. § 42-1409(C)(3)); and tangible personal property used in research (A.R.S. § 42-1409(C)(4)). Such items have no direct bearing on the extraction process; they are accessories. The chemicals are not accessories; they are essential, integral parts of the production machine.

CONCLUSION

Sulfuric acid, LIX and Orfom SX-7 function as machinery and equipment in the extraction and plating of cathode copper at the Cyprus plant. Therefore, they are exempt from Arizona's use tax pursuant to section 42-1409(B)(1). They are not "expendable materials" excluded from the exemption.

IT IS ORDERED that purchases of the chemicals at issue are exempt from use taxes and Cyprus is entitled to judgment in its favor.

This opinion is not a final, appealable judgment and other orders will follow. See *Devenir Associates v. City of Phoenix*, 169 Ariz. 500, 821 P.2d 161 (1991).

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