

**TENNESSEE DEPARTMENT OF REVENUE
REVENUE RULING #97-50**

WARNING

Revenue rulings are not binding on the Department. This presentation of the ruling in a redacted form is information only. Rulings are made in response to particular facts presented and are not intended necessarily as statements of Departmental policy.

SUBJECT

Application of sales and use tax to water treatment additives which remove impurities from water prior to its use as boiler or cooling tower water.

SCOPE

Revenue rulings are statements regarding the substantive application of law and statements of procedure that affect the rights and duties of taxpayers and other members of the public. Revenue rulings are advisory in nature and are not binding on the Department.

FACTS

The taxpayer is a manufacturer principally engaged in the fabrication or processing of tangible personal property for resale and consumption off its premises. This operation constitutes at least 51% of the taxpayer's gross revenue at the location in question. In its manufacturing process, the taxpayer utilizes boilers and cooling towers which qualify as industrial machinery under the sales and use tax code. The issue presented in this ruling request concerns water treatment additives used to remove impurities from water prior to its use as boiler or cooling tower water. The impurities are removed to prevent scale deposition, corrosion, and microbiological fouling in the boilers and cooling towers.

When feed/make-up water is drawn from its source for use in the boiler, it contains impurities such as calcium and magnesium salts. The calcium and magnesium ions are commonly referred to as "water hardness." These impurities must be removed from the water prior to using the water as boiler feedwater, otherwise the mineral salts would precipitate on the boiler tubes forming a hard scale. The consequences of scale deposition in the boiler are the following:

(1) The scale deposition creates a coating on the heat exchange surface which reduces the efficiency because of the insulating effect of the scale. If the scale deposits to an extreme, the system output is reduced until the boiler is no longer productive.

(2) Scaling is corrosive to the metal parts of the equipment.

Additives that are used to remove hard water impurities from boiler water include ion exchange resins, phosphate salts, and organic polymers.

An additional contaminant in boiler feedwater that must be removed is oxygen, which corrodes boiler metal. In addition to mechanical deaeration, chemical scavengers, such as sodium sulfite, must be used to remove all traces of oxygen.

Cooling tower systems have a shell and tube, or plate and frame heat exchanger that is an integral part of the cooling tower system. In the case of a cooling tower, there are three potential problems associated with contaminants in water that affect its performance: corrosion, scale, and microbiological fouling. When the heat transfer tubes of a cooling tower are insulated due to corrosion, scale, or microbiological fouling, the water will continue to cool, but the heat will not be removed from its source. The head pressure will build, ultimately resulting in the destruction of the compressor.

The types of water additives used in the treatment of cooling tower water include molybdates, polytriazole, phosphate compounds, algaecides, and bactericides.

ISSUE

Whether water treatment additives used to remove impurities from water prior to its use as boiler or cooling tower water are exempt from sales and use tax as industrial machinery.

RULING

Water treatment additives are not exempt from sales and use tax as industrial machinery.

ANALYSIS

The water additives described in the facts provided are tangible personal property, defined by T.C.A. §67-6-102(28) as personal property which can be seen, weighed, measured, felt, or touched, or is in any other manner perceptible to the senses. The sale or use of tangible personal property is taxable unless subject to an exemption. T.C.A. §67-6-206 provides to manufacturers an exemption with respect to industrial machinery, defined in T.C.A. §67-6-102(12) in pertinent part as:

Machinery, apparatus and equipment with all associated parts, appurtenances and accessories, including hydraulic fluids, lubricating oils, and greases necessary for operation and maintenance, repair parts and any

necessary repair or taxable installation labor therefor, which is necessary to, and primarily for the fabrication or processing of tangible personal property for resale and consumption off the premises, or pollution control facilities primarily used for air pollution control or water pollution control, where the use of such machinery, equipment or facilities is by one who engages in such fabrication or processing as one's principal business....”

T.C.A. §67-6-102(12)(A).

The taxpayer has not requested a ruling as to whether any exemption applies other than the industrial machinery exemption. Nor do the facts suggest that any other exemptions apply. Under the facts provided, then, the water treatment additives are subject to tax unless they qualify as industrial machinery.

Under the facts presented, the taxpayer satisfies the threshold requirement that it be a manufacturer in order to receive the industrial machinery exemption. The taxpayer qualifies as a manufacturer because at least fifty-one percent of its revenue at the location in question is derived from fabricating or processing tangible personal property for resale and consumption off the premises. *See, Tennessee Farmers' Cooperative v. State Ex Rel. Jackson*, 736 S.W.2d 87, 91-92 (Tenn. 1987).

However, to be exempt the water treatment additives must be machinery, apparatus or equipment, or an associated part, appurtenance or accessory thereto which is necessary to, and primarily for the fabrication or processing of tangible personal property for resale and consumption off the premises. T.C.A. §67-6-102(12)(A); *Tibbals Flooring Company v. Huddleston*, 891 S.W.2d 196 (Tenn. 1994). The facts presented do not support such a finding.

First, it is clear the additives, composed of various resins, polymers and compounds, do not fit the definitions of machinery or equipment.¹

Second, the water additives will not be exempt as apparatus. The Tennessee Supreme Court has defined “apparatus” as “the totality of means by which a designated function is performed or a specific task executed” and as “a set of materials or equipment designed for a particular use” and as “a collection of component parts designed for a specific mechanical or chemical action or operation.” *AFG Industries, Inc. v. Cardwell*, 835 S.W.2d 583, 585 (Tenn. 1992). If the water additives are considered apparatus because they are materials designed for a particular use or are the means by which a function is performed, they would still not be industrial machinery. The use or function of the additives is to remove impurities from water. For an apparatus to be exempt as industrial

¹ The Tennessee Supreme Court has defined “machinery” as “machines as a functioning unit” and “equipment” as “the physical resources serving to equip a person [such as] the implements (as machinery or tools) used in an operation or activity...all the fixed assets other than land and buildings of a business enterprise.” *Tibbals Flooring Company v. Huddleston*, 891 S.W.2d 196, 198-99 (Tenn. 1994).

machinery, it must be primarily for the fabrication or processing of tangible personal property for resale and consumption off the premises. T.C.A. §67-6-102(12)(A). “Primarily” has been defined as “first of all; principally; or fundamentally” and as “first in rank or importance, chief, principal, basic or fundamental.” *Woods v. General Oils, Inc*, 558 S.W.2d 433, 436 (Tenn. 1977). The fundamental and principal purpose of the additives is to prevent damage to the boilers and cooling towers by removing impurities from the water. Its primary purpose is not the fabrication of property.

The final question is whether the additives are an associated part, appurtenance or accessory to the boilers and cooling towers. In *AFG Industries* the Court was dealing with a tin bath used to shape and cool molten glass while conveying it from the furnace to the annealing oven. *AFG Industries*, 835 S.W.2d at 584-85. The Court determined that the tin bath was an apparatus, and the molten tin was an accessory and an associated part of the tin bath apparatus. *Id.* Also, in 1992, the legislature specifically included hydraulic fluids, lubricating oils, and greases as associated parts, appurtenances or accessories to machinery, apparatus or equipment when they are necessary for its operation or maintenance. 1992 Tenn. Pub. Acts 917.

Under the facts presented here, the boilers and cooling towers qualify as industrial machinery under T.C.A. §67-6-102(12)(A). The issue is whether the water treatment additives are an associated part, appurtenance or accessory to the boilers and cooling towers. The facts do not support this conclusion.

The molten tin in *AFG Industries* was clearly a part of the tin bath apparatus, used to perform functions previously accomplished through the use of rollers and polishers. *AFG Industries*, 835 S.W.2d at 585. Similarly, hydraulic fluids, lubricating oils, and greases are integral parts of the machinery in which they function. In contrast, the water treatment additives are used to remove impurities from the water prior to the water’s use in the boilers and cooling towers. They act separately and apart from the boilers and cooling towers. Under the facts presented, it cannot be concluded that these additives are an associated part, appurtenance or accessory to the boilers and cooling towers.

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