Ruling 97-02

Vermont Department of Taxes

Date: May 20, 1997

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Approved By: Edward W. Haase, Commissioner of Taxes

This ruling is based on your information in your letter of August 27, 1996, supplemented by information provided in previous correspondence, and information obtained in our meetings at the site and by the observations of Tax Field Examiner [name] who has visited the site.

[Company] is the prime contractor for construction of a manufacturing facility for [Corporation] in [City, State]. The facility will be used by [Company]for the production of microchips, its "CMOS" line. The production equipment, usually referred to as "manufacturing tools" or "process tools", used in this facility will be exempt from Vermont sales and use tax under the provisions of Title 32, Vermont Statutes Annotated, Section 9741(14). This ruling addresses the question of whether certain support equipment included in the construction project are also exempt from sales tax as equipment used directly and exclusively for manufacturing.

Your letter asks for a ruling on five categories of equipment:
I. Cleanroom Components and Equipment for Ensuring Clean Environment.
II. Machinery Integrated into Manufacturing Tools.
III. Deionized Water System
IV. Gas & Chemical Processing and Supply System.
V. Multi-purpose Manufacturing Systems.

This ruling applies only to components of these systems which retain the character of personal property. Any item which becomes real property is taxable as the exemption for manufacturing machinery and equipment reaches only tangible personal property. The sales tax exemption for manufacturing is provided by title 32, Vermont Statutes Annotated, Section 9741(14) and Regulation 1.9741(14). As it pertains to machinery and equipment the exemption is limited to tangible personal property which is use directly and exclusively to manufacture products for sale. The exclusivity provision includes an exception for occasional or isolated uses.

The rules for determining direct use include:
- Exclusion of pre-manufacturing steps including collecting, weighing, and storing raw materials. Reg. 1.9741(14)-2(b).
-Consideration for the physical proximity of the equipment to the production process and for the active causal relationship between the use of the equipment and the production.

No consideration is given, however, to the mere fact that the equipment is legally or practically necessary for the production. Reg. 1.9741(14)-5
-Equipment used for dual purposes is not exempt unless both purposes are exempt. Reg. 1.9741(14)-6. (Presumably, this is limited by the exception for occasional or isolated use exception.)
-Space heating, cooling, ventilation, and illumination do not qualify as direct manufacturing functions. Reg. 1.9741(14)-11.
-Transporting, conveying or storing tangible personal property prior to its use the "first production stage" is a taxable, indirect pre-production function. Reg. 1.9741(14)-12.
-Waste disposal is not a direct use. Reg. 1.9741(14)-14.
Where the law and regulation leaves doubt about the reach of an exemption the exemption must be strictly construed with no exemption allowed unless shown to be within the necessary scope of the statute. Standard Register Co. v. Commissioner of Taxes, 135 Vt. 271 (1977).

I. Cleanroom Components and Equipment for Ensuring Clean Environment.
Because the work in process and manufacturing tools are highly susceptible to airborne contaminants and to variations in temperature, humidity and pressure, throughout the manufacturing process, the product is surrounded with air which is processed to extreme standards, with temperature and moisture maintained within a limited range and virtually all particles filtered from the air. The manufacturing is performed in a cleanroom environment maintained to meet federal standard 209E. The cleanroom is built with surfaces which resist collecting or emitting contaminants and which are non-conductive. The floors, ceilings and walls are configured in a manner to control the flow of air. Lights in photo-sensitive areas are yellow to block ultra-violet light. A Clean Air Handling System maintains the ambient air within the cleanroom. This system includes Recirculation Units which are configured to dissipate heat generated by the manufacturing tools and to minimize the possibility of contaminants landing on the work in process. Air flow to the process tools is provided through high efficiency final filters, HEPA (High Efficiency Particle Attentuation) or ULPA (Ultra Low Particle Attentuation) filters.

A Make-Up Air Handling Unit is the source of replacement air for the cleanrooms. This unit conditions outside air to a set dew point and filters out contaminants and provide air required to replace air in the cleanroom. The cleanroom is maintained with a higher air pressure than the outside areas to reduce particle infiltration. The amount of air required is eight to ten times greater than the requirement of a standard room ventilation system.

A House Vacuum System is maintained in the clean room and is used by the manufacturing personnel to remove localized contaminants.

In general, maintenance of an environment in which manufacturing is conducted is not a direct manufacturing function. In the case of the cleanroom, however, the configuration directly controls the manufacturing function of keeping the highly processed, tightly controlled air around the product. Those elements of tangible personal property from which the cleanroom is configured are exempt manufacturing equipment. These include raised floors, walls, ceilings and light fixtures to the extent that a the fixture constitutes part of the control of the air flow. Vinyl flooring permanently cemented to the floor is part

of real property and is not exempt. Light fixtures which are not part of the air control, and replacement bulbs have the function of illumination, which is not a direct manufacturing function. The fact that some products which perform this function would create unacceptable contamination to the product does not create an exemption for the lighting chosen. Those components dedicated to removing heat or contaminants from the immediate area of the product are exempt. These will include HEPA filters and ULPA filters and Recirculation Units configured to move air toward the filters or away from the work in process.

Although air supply is generally not a direct manufacturing activity, the Make-up Air System is creating a supply which is substantially different from the air circulated in other areas. The creation of a manufacturing supply is a direct manufacturing function and is exempt if it meets the exclusivity requirement. This air is only used in the limited area where it can be used to control the product. Providing air for personnel or for incidental operations within the cleanroom which are not direct manufacturing functions are not manufacturing functions and presumably a more inert environment than air would be chosen except for the necessity of providing breathable air to the workers. However, the entire supply of air is continuously used for the manufacturing function and is a manufacturing supply. Therefore, the Make-up Air System is exempt beginning at the first step where air is treated by filtration, heating or cooling.

The House Vacuum System is a general purpose system for use within the clean room and only indirectly used in manufacturing and is not exempt.

II. Machinery and Systems Integrated into Manufacturing Tools.
Tool Hook-ups. Tool Hook-ups are ductwork, pipe, electrical, and facade work supporting the facility services to the tool. To the extent that the components are supporting a system which is an exempt manufacturing system, the Hook-up is exempt. The Hook-up will also be considered to be part of a machine and exempt to the extent it is in the cleanroom or connecting machinery in the cleanroom to support equipment located in adjacent areas, whether or not contiguous.

Electrical System. Voltage step-down and other functions of routing or converting electricity at a location remote from the production area is not a direct manufacturing process. The Department has consistently treated this as pre-manufacturing activity. Therefore no component of the electrical system is exempt until the control switch near the machine[1].

Process Cooling Water. This is a closed loop system which removes heat from the manufacturing equipment. The system does not connect to equipment which cools the general environmental air or to any equipment not used directly and exclusively in manufacturing. The direct cooling of the machinery is closely integrated to the process and therefore this system is exempt.

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[1] The Department is currently considering a regulation revision which would change this interpretation. Any change would be effective as of the date of any new regulation or general policy bulletin.

Process Exhaust Systems. Exhaust systems are connected directly to the tools through a duct header system. The system vents harmful vapors and heat away from the product and perform a function integrated with the cleanroom air handling system. The exhaust is an integral part of the tool and not a separately purchased item. The system for solvents includes a Solvent Abatement System composed of adsorption vessels, fans, condensers, controls, and stacks. The system used to treat acid exhausts includes Acid Scrubber system.

Waste disposal and pollution abatement are not exempt manufacturing functions. Reg. 1.9741(14)-14. These systems are exempt to the extent that they are removing contaminants from the product area (the cleanroom) and taxable to the extent of any processing for pollution abatement or for further disposal of the waste after it has been removed from the product area. Where a production tool includes components which have a waste disposal or abatement function, the tool will still be considered to be exclusively used in manufacturing and the separate component will be considered taxable only if the vendor charges separately for that component.

Process Waste Drains. This is a system of drains connected directly to the process tools and used to transport waste chemicals and waste deionized water to a treatment facility, waste tanks, or both. The system includes an industrial lagoon system with pipes, tanks, pumps which takes industrial waste water from the building and which is used as a storage area prior to treatment and disposal into the river.

As noted above, waste disposal is generally not a direct manufacturing function and is taxable. The system is exempt only to the extent of removing waste from the cleanroom.

Process Vacuum System. This is a system connected to various tools. The vacuum operates various functions, usually controls within the tools. This is an exempt function and the vacuum system is exempt.

III. Dionized Water System.
Deionized water is a supply used in manufacturing. The manufacture of a supply is itself a manufacturing step, therefore the equipment used to manufacture the deionized water is exempt. Heat exchangers, pumps, etc. used in the raw water upgrade in proximity to the purification are exempt manufacturing equipment, as are beds, filters, pumps, Ultraviolet lights, and piping used for the purification. Also, because it follows the first manufacturing step, piping, controls, etc., used between the upgrade application of the deionized water to the process are also exempt. This assumes that at least 96% of the deionized water is directly used in the manufacturing process.

IV. Gas & Chemical Supply and Processing.
Gases and chemicals which are consumed in manufacturing are received from suppliers at locations remote from the production area. Generally parallel systems connect the process tooling to the supply area. This system includes supply lines, filters, pumps, and various controls which respond to input from the various production tools to assure that when a the appropriate substance is delivered at appropriate time and pressure. The systems are generally similar to the deionized water system. The

deionized water system, however, receives a presumption of exemption because it was a link between manufacturing processes, [Company] itself manufactures the deionized water on the site. In general a system for delivery of a manufacturing supply to the production area taxable as the delivery function is pre-production. Reg. 1.9741(14)-12. In these cases substantial processing of the substance takes place within the systems, in some cases dilution or mixing, and in all cases purification. Therefore these systems are exempt from the point where the first such processing step occurs.

No exemption applies to portions dedicated to disposal of waste substances after their use in manufacturing is completed, as noted in the discussion of the Process Exhaust System and Process Waste System above.

V. Multi-purpose Manufacturing Systems.
This category includes a Chilled Water System, Glycol-chilled Water System, Steam Generation and Distribution System, and High Temperature Hot Water System used to control temperature and humidity of ambient air the Make-Up Air System and Recirculation Units. Each of these systems is used to control the temperature or moisture in the processing of the air to be supplied to the cleanroom. The Chilled Water System also is used to regulate the temperature of water in the Process Cooling Water System. Steam from the Steam Generation System is also used to regenerate carbon beds of the solvent abatement system. The High Temperature Hot Water System is also used in the Deionized Water System, Steam Generator, and Recirculation Units. Additionally all of these systems except the Glycol-chilled Water System are used to regulate the ambient air systems throughout the building (the air system outside of the cleanroom).

Of the functions noted above, all except the filter regeneration in the solvent abatement system and the treatment of the general building air are manufacturing functions. If more than four percent of the capacity of any of these systems is used for those functions the system is taxable. If no more than 4% of the capacity is used for functions other than direct manufacturing, the system is exempt.[2]

This ruling is issued solely to your business and is limited to the facts presented as affected by current statutes and regulations. Other taxpayers may refer to this ruling to determine the Department's general approach, but the Department will not be bound by this ruling in the case of any other taxpayer or in the case of any change in the relevant statute or regulations.

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[2] The 4% "rebuttable presumption" in the statute does not actually apply. That presumption is a clarification of the exception for "isolated or occasional uses". The non-manufacturing uses of these systems are recurring and continuous. However, the Department considers a use limited to no more than 4% of a system's capacity to be de minimus.