Appeal No. VA88/0/057

**AN BINSE LUACHÁLA**

**VALUATION TRIBUNAL**

**AN tACHT LUACHÁLA, 1988**

**VALUATION ACT, 1988**

**Pfizer Chemical Corporation** **APPELLANT**

**and**

**Commissioner of Valuation** **RESPONDENT**

RE: Chemical Factory (pt of) grounds and land at Lot 1Aa, Ballintaggart, E.D. Carrigaline, Co. Cork

Rateability of tanks and cooling towers used in the processing of molasses

B E F O R E

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| **Paul Butler** | **Barrister (Acting Chairman)** |
| **Mary Devins** | **Solicitor** |
| **Brian O'Farrell** | **Valuer** |

**JUDGMENT OF THE VALUATION TRIBUNAL**
**ISSUED ON THE 13TH DAY OF FEBRUARY, 1990**

By notice of appeal dated the 12th day of August 1988, the appellants appealed against the determination of the respondent fixing the rateable valuation of the above described hereditaments at £9,524.25. (Land £74.25, Buildings etc. £6,640, Absolute £2,810).

The grounds of appeal as set out in the notice of appeal are as follows:-

1. The valuation is excessive and inequitable and bad in law.

2. The rateable valuation is bad in law, in that rateable valuations have been allotted to, or attributed to, items which are not rateable hereditaments or alternatively, in arriving at the net annual value, the Commissioner of Valuation erred in law in including therein the value or values of items which are not rateable hereditaments.

3. The Commissioner of Valuation has erred in law in including in the valuation or assigning any annual value or rateable valuation to non-rateable plant and machinery.

As the undertaking lies in 2 separate townlands, viz. Ballintaggart and Ballybricken, there are, in effect two hereditaments. This appeal is concerned with that part of the premises referred to at Map Ref. 1Aa, Ballintaggart, comprising process tanks, citric acid tanks, surge tanks, effluent tanks, recovery columns, cooling towers. The effluent tanks, process tanks and a chimney have now been removed from rateability.

The operation of these plants and the construction and function of the various installations were described in the written précis of Mr Patrick Forristal B.E.C.Eng., Project Engineering Manager and Mr John M. Burnett B.A. (Bacteriology) Fermentation Plant Manager. These précis were submitted to the Tribunal prior to the oral hearing.

The subject premises, comprising both hereditaments, were the subject of a number of Circuit Court appeals from the period 1973 to 1982. The Commissioner of Valuation accepted the decision of the Circuit Court Judge. The appellant company appealed further by way of case stated to the High Court and Judge Costello upheld the decision of the Circuit Court Judge.
The subject hereditament was inspected and revised in June 1987. In November 1987 after the Valuation Lists issued, the appellants appealed to the Commissioner of Valuation. Mr Thomas Stapleton, B.Agr.Sc., District Valuer, inspected the premises on behalf of the Commissioner of Valuation, and on receipt of his report, the Commissioner of Valuation issued his decision which reduced the revised building valuation from £9,600 to £6,640 with £2,810 transferred to the miscellaneous (or absolute) column. He left disputed items rateable which are contained in the R.V. of £2,810. In August 1988 the appellants lodged their appeals to the Valuation Tribunal.

At the oral hearing which took place in Dublin on the 27th October, 1989, Mr Marcus Daly S.C. (instructed by Matheson Ormsby & Prentice, Solicitors) appeared on behalf of the appellants. Mr Aindrias O Caoimh, Barrister (instructed by the Chief State Solicitor) appeared on behalf of the respondent and further submissions were made on the 5th February, 1989.

Mr Burnett referred to his written précis dated the 18th October, 1989 and detailed the process of the molasses once it leaves the shore tanks (the subject of appeal 88/56) and moves on into the Fermentation Building.

Fermentation of Molasses

At the fermentation Building, (reference 142 on the attached chart, Appendix A), the molasses is received into two mild steel vertical cylindrical 59,000 gallon tanks (F151/152 Appendix A) where it is heated by outflow heaters (as already described) and is kept circulating continuously through these tanks to maintain temperature and consistency in readiness for fermentation.

The two tanks form part of a battery (C Appendix A) of, in all, three mild steel tanks and six wooden vats which are used in the preparation of the molasses in readiness for fermentation. The vats are constructed from wood to eliminate any possibility of metal contamination during these stages of the process as this could affect the fermentation.

The purpose of these vats is to alter the composition of molasses to a condition which will allow fermentation to take place. This involves the molasses dilution with hot water to a pre-determined sugar concentration. Specific details of these tanks and vats (other than the two molasses tanks described above) are as follows:-

F146 8,300 gallon mild steel molasses tank; heated by external steam coil; this is used as a back-up to the two molasses tanks already described. The contents of this tank is also recycled and is used for the most part in pilot plant molasses evaluations.

There are two stages in the fermentation operation in which the six wooden vats are used; these are as follows:-

(i) First or 'seed' stage of the fermentation process

F140: 16,000 gallon wooden vat; heated by steam sparger to 95°C and agitated by agitator used for 'seed' stage. It then goes to a vessel inside the Fermentation Building where the growth/'seed' stage occurs.

(ii) Second or 'fermenter' stage of the fermentation process

F26/27: 2 x 128,000 gallon wooden vats where the molasses is diluted with hot water, heated by steam sparger to 80°C and agitated by agitator; used for 'fermenter' stage.

F28/39/40: 16,600 gallon wooden vat; heated by steam coil; used to feed the 'fermenter' stage.

After preparation, the diluted molasses is fermented in the fermenters within building 142 thus turning the sugar contained in the molasses into crude citric acid (in the form of 'broth').

Refining of Crude Citric Acid

When the fermentation process is completed, broth is transferred to four wooden vats (see D, Appendix A) each with a capacity of 106,000 gallons. These vats are of a wooden construction because of its suitability to resist acid attack.

They are heated by steam spargers and agitated by agitator. They were designed and used for; (a) blending of broth process, (b) treatment of process recycle streams with fresh broth which causes polymeric sugar compounds to precipitate from solution, and (c) heating of the contents through 86°F and dosing with sulphuric acid for processing for next stage of the process.

Broth is pumped as required into the Recovery Building (143, Appendix A) for refining into citric acid. In this building, the broth is filtered (micro-organisms removed from broth by centrifugation).

In 1985, nine tanks (F1, Appendix A) were installed as part of a major process improvement which also increased production volume. They are as follows:-

| | |
|---|---|
| R.1379/81/83/85/87 | 5 x 14,200 gallons |
| R.1351/53 | 2 x 20,700 gallons |
| R.1369/71 | 2 x 23,000 gallons |

All these tanks are of stainless steel construction and are fitted with agitators and steam coils to enable the contents to be heated. They are insulated for energy conservation. Filtered broth from the vats is pumped continuously to tanks R.1351/53/69/71 at approximate flow of 250 gallons per minute and gypsum and lime are added. The contents are continuously agitated and heated by live steam to a maximum of 85°C and the process is continuously monitored. This mixture then goes to a filter, where the solids calcium citrate are filtered off and the filtrate (weak citrate) is further processed to tanks R.1379/81/83/85/87, where lime only is continuously added in specific quantities and in a specific way and again continuously heated and agitated therein and this mixture goes to tanks on the next stage of the process.

The next stage of the process involves the following five process tanks (see F, Appendix A). Two are used in the gluconic process.

R.500: 21,000 gallon stainless steel tank; used for gluconic broth after the fermentation stage is completed. In this tank, fermentation broth has to have residual nutrients removed before further processing. To achieve this, a very specific coagulation step has to be induced using silica clays, the amount of which varies depending on the type and extent of nutrients. Also, colour bodies have to be eliminated by absorption onto porous carbon. Filtration (which is the next stage of the refining process) can only be completed by the addition of diatomaceous earths which free up residual clay and carbon additions which would otherwise interfere with this operation. The broth needs to be continuously heated to a temperature of 65°C by steam circulation through internal coils. Continuous agitation is critical so as not to disintegrate the delicate flocculants of nutrients and clay.

R.739: 24,000 gallon stainless steel tank; the main purpose is to adjust the continuous supply of condensate from the gluconic evaporation stage with process water to a temperature (60°C) which is optional for further production purposes (i.e. continuous filter screen washing and dilution). Temperature is controlled and continuously adjusted by live steam.

Calcium citrate is decomposed with sulphuric acid inside Building 143 to produce a crude dilute solution of citric acid and gypsum in the form of a slurry.

The next stage of the process is to separate citric acid from gypsum and that is achieved with the use of filters. R129 (21,000 gallon mild steel rubber lined tank) is used to receive citric solutions after filtration. Various citric steams are continuously fed into this tank and blended. The tank is agitated to ensure homogeneity.

R279/281 are 4,900 gallon stainless steel tanks and are used for blending water streams which result from filter cloth washings and other sources in the same manner as R739 (gluconic process). Temperature is adjusted with live steam to an optimum level.

At various stages of the refining process, intermediate grades of citric acid are produced.

These basically comprise citric acid at a range of concentrations. These partially concentrated liquors are transferred to the following four tanks.

R974/75/77/79 4 x 33,000 gallons.

These tanks are also constructed of stainless steel. They have installed agitators and steam coils and are insulated for energy conservation. Their function is to pre-blend liquor streams prior to

the next processing steps which subsequently involve crystallisation and drying. The tanks are also used to remove colour and sulphates which would otherwise impact on the quality of the final product.

Mr Forristal gave evidence in relation to the Cooling Towers (Ref. U, V and K on the drawing attached hereto as Appendix "A")

Cooling Towers

Water is used as a cooling medium throughout the production facilities at Pfizer. This "cooling water" is circulated continuously to the various processes through a network of piping.
The piping carries the water to equipment such as heat exchangers and condensers where heat is removed from the process materials and passed to the cooling water.

Cooling water entering the different plant areas is at a temperature of 68°F and, having carried out its cooling duties, rises to a temperature of 90°F. It thus needs to be cooled before being returned to the processes.

In the same way the cooling water in a car engine is passed continuously through the radiator for cooling, so is the cooling water in the plant passed continuously through the cooling towers.

The cooling effect is achieved by cascading the water from the top of the tower, over specially constructed timber battens, while simultaneously drawing large volume of air upwards through the tower. The air movement is achieved by means of a number of electrically-driven fans mounted on top of the towers.

The cooling water is then collected at the base of the tower in order to feed the re-circulation pumps.

The cooling water system continuously circulates 22,000 gallons per minute of cooling water through the plant.

The cooling towers are of open timber construction, standing on concrete bases. No. 1 tower (reference U, Appendix A) is 183 ft x 38 ft and is 55 ft high. No. 2 tower is 72 ft x 40 ft and is 49 ft high. The collection basins at the base of each tower, feeding the re-circulation pumps, are 5 ft high.

The cooling towers are designed and used to lower the temperature of the cooling water, in a continuous circuit. He said that they are not designed or used for storage or containment.

He explained that in these constructions of steel and timber the water is constantly moving through and there is no element of containment whatsoever.

Solvent Recovery Towers

The Solvent Recovery Towers are located in the Organic Synthesis Plant area of the Pfizer site. Here, a number of bulk pharmaceutical products are manufactured and are despatched to various factories around the world for tableting, incapsultating and packaging.

Solvents are used extensively in bulk pharmaceutical production processes to dissolve solid materials which are insoluble in water. Many of the raw materials for the processes are in solid (powder) form. By dissolving or suspending these materials in liquid solvents such as Acetone, Ethyl Acetate, Isopropyl Alcohol, etc., transport of the materials through the plant and chemical reactions are facilitated.

Following the processing, the solid materials (the desired finished product of the plant) are separated from the solvents by centrifugation.

The solvents, at this stage, contain many impurities, including water which must be removed before the solvent may be re-used in the plant.

The impurities are removed from the solvents by means of a distillation process carried out in the Solvent Recovery Towers.

The towers are constructed of stainless steel, are approximately 30 inches in diameter and vary in height from 42 ft. to 63 ft. Internally they contain a number of perforated trays, evenly spaced from the top to the bottom of the towers.

The impure solvents are pumped into the towers at various levels and flow continuously downwards over the trays. Heat is applied, using steam, at the base of the towers and evaporation of the pure solvent takes place. The vapours are removed from the top of the towers and are condensed, yielding a pure, liquid solvent which is returned to storage or to the process. The distillation or Solvent Recovery Towers operate continuously, serving the purpose of distilling and recovering solvents.

In reply to Mr O Caoimh's question as to whether the two large collection basins at the foot of the cooling towers did not indicate a degree of containment, Mr Forristal replied that the water is collected there only so that it might be pumped back into the system.

**The Law**

What are rateable hereditaments are described in section 12 of the Valuation (Ireland) Act, 1852, as extended by section 2 of the Valuation Act, 1986 and, therefore, the categories of rateable valuation are those set out therein.

The original section 7 of the Annual Revision of Rateable Property (Ireland) Amendment Act, 1860 was as follows:

> In making the Valuation of any Mill or Manufactory, or Building erected or used for any such Purpose, the Commissioner of Valuation shall in each Case value the Water or other Motive Power thereof, but shall not take into account the Value of any Machinery therein, save only such as shall be erected and used for the Production of Motive Power.

The amendments made to that section by section 7 & 8 of the Valuation Act, 1986, are as follows:-

7. The following section is hereby substituted for section 7 of the Act of 1860:

"7. (1) (a) In making the valuation of any mill or manufactory, or building erected or used for any such purpose, the Commissioner of Valuation shall in each case value the water or other motive power thereof, but shall not take into account the value of any machinery therein, save only such as shall be erected and used for the production of motive power.

(b) For the purposes of this subsection, machinery erected and used for the production of motive power includes electrical power connections.

(2) The Commissioner of Valuation shall value plant falling within any of the categories of plant specified in the Schedule to this Act (inserted by the Valuation Act, 1986).

(3) In valuing plant referred to in subsection (2) of this section, the Commissioner of Valuation shall not take into consideration a part of any plant which moves (or is moved) mechanically or electrically, other than a telescopic container."

8. (1) The Act of 1860 is hereby amended by the insertion after section 15 of the following Schedule:

**"SCHEDULE**

| (1) Reference Number | (2) Categories of Plant |
|---|---|
| 1. | All constructions affixed to the premises comprising a mill, manufactory or building (whether on or below the ground) and used for the containment of a substance or for the transmission of a substance or electric current, including any such constructions which are designed or used primarily for storage or containment (whether or not the purpose of such containment is to allow a natural or a chemical process to take place), but excluding any such constructions which are designed or used primarily to induce a process of change in the substance contained or transmitted. |
| 2. | All fixed furnaces, boilers, ovens and kilns. |
| 3. | All ponds and reservoirs. |

"

Prior to the enactment of the 1986 Act there were a number of cases which set out to define what was meant by "machinery". The Tribunal finds of particular assistance (and has found in the past) the judgment of Finlay P. (as he then was) in the Beamish & Crawford Case (8th May, 1978 (unreported) and approved by the Supreme Court on the 23rd July; (1980) ILRM 149. In particular the learned judge held that it was inappropriate in considering, to use a neutral term, any piece of equipment used in a manufactory to consider its component parts piecemeal for the purpose of designating some parts as machinery and some as not.

**Submissions**

At this stage in the oral hearing Mr O Caoimh stated that certain constructions had now been conceded by the Commissioner to be exempt from rateability, viz; four wooden citric acid vats (Ref Nos. R1, R2, R3 & R4), nine process tanks (R.1379/81/83/85/87, R.1351/53, R.1369/71), tank R.500 and tanks R.974/5/7/9.

In relation to the remaining constructions Mr O Caoimh argued that tanks 151/152/146 known as day tanks serve only to preserve molasses in a homogeneous state. He stated that six vats F.140, F.26/27/28/39/40 were used for containment purposes only and that the actual fermentation took place elsewhere. In relation to tanks R.739/129, R.279/281 he again argued that no change in the substance took place in any of these constructions.

Mr O Caoimh argued that the cooling towers were constructions affixed to land and so rateable by virtue of the Valuation Act, 1986. He contended that the solvent recovery towers were in effect "boilers" and accordingly were rateable.

Mr Daly then agreed that tanks R.739, R.279 and R.281 were rateable and no longer part of this appeal.

He argued that the remaining tanks and vats, the subject of this appeal are items of non-rateable plant. They were not built primarily for containment but were designed primarily to induce a process of change. He pointed out that as in the Beamish & Crawford case the 'entire' process must be looked at. He submitted that as the cooling towers were obviously not for containment and equally obviously were not ponds, they can only be seen as items of non-rateable plant.

In relation to the solvent recovery towers he refuted Mr O Caoimh's contention that these were 'boilers' and stated that under no circumstances could these be considered as such. No furnace of any type formed part of these towers.

**Findings**

As regards the decision in the Pfizer case before the High Court which was issued on the 9th May, 1989, the Tribunal would of course be bound to follow it if that case had been heard at the 1st instance, after the enactment of the Valuation Act, 1986. The position now is that the Tribunal has reached a certain conclusion in the past in relation to the effect of the Valuation Act, 1986 (c.f. Mitchelstown Co-op Creameries Ltd, North Kerry Milk Products Ltd. and Premier Molasses).

It is satisfied that none of the constructions remaining the subject of this appeal was designed or used primarily for storage or containment.

The operations in the Food Chemicals Plant and the Bulk Pharmaceuticals Plant must each be viewed as an entire integrated process. In each and all of the constructions a process of change is induced and each construction is designed and used primarily for that purpose.

The Tribunal finds that this hereditament is entitled to exemption from rateability.