Appeal No. VA88/0/122 & 286
& VA89/0/093

AN BINSE LUACHÁLA

VALUATION TRIBUNAL

AN tACHT LUACHÁLA, 1988

VALUATION ACT, 1988

Siuicre Eireann Cpt. and

Cork County Council **APPELLANT**

and

Commissioner of Valuation **RESPONDENT**

RE: Lot No: Part 1,2B, Kilvealton West, E.D. Dromore, R.D. Mallow, Co. Cork
Rateability of sugar silos and molasses tanks

B E F O R E

Henry Abbott	**Barrister Chairman**
Paul Butler	**Barrister**
Padraig Connellan	**Solicitor**

JUDGMENT OF THE VALUATION TRIBUNAL
DELIVERED ON THE 15TH DAY OF OCTOBER, 1990.

By notices of appeal dated the 6th day of August, 1988 in respect of Siuicre Eireann, Appeal No. 88/122 and the 23rd day of August, 1988 in respect of Cork County Council, Appeal No. 88/286, appeals to the Tribunal were lodged against the determination of the Commissioner of Valuation in setting the rateable valuation of this property at £4,393.40. The notice of appeal in respect of Appeal No. 89/93 (Siuicre Eireann) was received on the 11th August, 1989.

The grounds of appeal in respect of appeal no. 88/122 were:

1. That the valuation is excessive and inequitable and bad in law.

2. That 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 has erred in law in including therein the value or values of items which are not rateable hereditaments.

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

And the grounds of appeal in respect of appeal no. 88/286 were as follows:-

Failure to revise, increase and update to current levels the valuation of the holding and to take account of the 1986 Act.

The grounds of appeal in respect of appeal no. 89/93 are as set out above for appeal no. 88/122.

This appeal was the subject of a protracted application for a right of entry for inspection by Cork County Council. A decision of the then Chairman of the Tribunal, Mr. Hugh J O'Flaherty, in respect of the application for right of entry was given on the 9th day of June, 1989 whereby the application was granted and an Order was issued on the 9th day of June, 1989 laying down the conditions under which the inspection should take place. The appeals were then listed for hearing before the Tribunal on the 25th July, 1989. An application for an adjournment was made because of the sickness of one of the witnesses and a further date was set for the hearing of the appeal on Thursday the 14th September, 1989. An application was made to the Tribunal for an adjournment and a judgment on this application was delivered on the 13th day of September, 1989 refusing the application. This judgment was the subject of a judicial review before the High Court on the 27th November, 1989 and resumed on the 11th December, 1989. Mr. Justice Gannon refused the relief sought by the applicant and stated that the Valuation Tribunal acted within its jurisdiction in refusing to grant the adjournment sought by the applicant. The appeal was subsequently set for hearing before Mr. Hugh J O'Flaherty, Mrs. Mary Devins and Mr. Padraic Connellan and took place on the 2nd February, 12th February and on the 12th March 1990 on which date the hearing was adjourned until after Easter. In the interim, however, the

then Chairman of the Tribunal resigned on his appointment as a judge of the Supreme Court. The matter was put down for mention on the 18th May, 1990 before Mr. Henry J. Abbott who was appointed Chairman of the Tribunal on the 6th April, 1990 and the rehearing of the appeal was fixed for 5th September, 1990. Mr. Marcus Daly S.C. for Siuicre Eireann requested that a completely new Tribunal should sit to hear this appeal.

At the hearing of the appeal on the 5th September, 1990 Mr. Marcus Daly raised an objection to the composition of the Tribunal on the grounds that one member had already heard evidence in the previous abortive hearing of the appeal, and that he might carry with him impressions or details of the former hearing to discussions of the Tribunal on aspects of the appeal. Mr. Daly then sought instructions on whether to proceed with the appeal or not. His instructions were to proceed but to keep the objection open. The Tribunal was unhappy to continue, and adjourned the appeal until 11.00am to allow Mr. Daly a further opportunity to get more detailed instructions. At 11.00am Mr. Daly said that his instructions had not changed and that even if a months adjournment was granted they would be unlikely to change. The Tribunal then adjourned to consider its position as it was unhappy to continue with a threat of a judicial review at any stage during the proceedings of this issue. The Tribunal determined that Mr. Daly had been given sufficient opportunity to seek a Judicial Review to restrain the Tribunal as constituted from hearing the appeal. On reaching this determination the Tribunal was influenced by the fact that Mr. Daly indicated that even if a one-month adjournment were granted his position would not change. Given that Mr. Daly did not exercise the option of seeking a Judicial Review, as afforded by the Tribunal and that he was unlikely to, even if granted a further adjournment, the Tribunal determined to hear the appeal.

Written submissions were received at various stages of this appeal from all parties and these submissions were relied upon by all parties for the hearing of the appeal on the 5th September, 1990. By letter dated the 10th August, 1990 Siuicre Eireann informed the Tribunal that in view

of recent decisions of the Tribunal they proposed to confine their appeals to the rateability or otherwise of

Sugar Silo No. 1 R.V. £275

Sugar Silo No. 2 R.V. £412 and

Molasses Tanks R.V. £113 and that the parts of the various précis already submitted which are not relevant to the appeals under the above headings should be disregarded.

The Tribunal therefore accepted all précis previously submitted from all parties disregarding material on the Heavy Fuel Oil Tanks and the Lime Kiln which are no longer being contested.

The following written submissions were submitted in respect of the appeals.

A. Written submission received on the 31st January, 1990 from Des Killen of Donal O'Buachalla & Co. Ltd. on behalf of Siuicre Eireann.

B. Written submission received on the 31st January, 1990 from Mr. Jim Lehane, Senior Technologist Siuicre Eireann Cpt.

C. Written submission from Mr. Frank O'Donnell & Co dated the 29th January, 1990 on behalf of Cork County Council.

D. Written submission prepared by Mr. Kieran O'Brien, Executive Chemist Cork County Council dated January 1990.

E. Written submission prepared by Mr. Eoin Buckly, Executive Engineer Cork County Council received on the 1st February, 1990.

F. Written submission received on the 1st February, 1990 from Mr. Kevin Heery on behalf of the Commissioner of Valuation.

G. Written submission received on the 9th March, 1990 from Mr. Gerard J. Holland, Chief Chemist at the Mallow Sugar Factory.

The following is a brief summary of these submissions in the order that they appear above.

A. Submission of Mr. Des Killen

Mr. Killen said that the matters at issue for the consideration of the Tribunal are in the rateability of certain installations, which can be divided as follows:-

(a) Installations, rateability of which is admitted
and
(b) Installations, the rateability of which is not admitted.

The items of contention consist of sugar silos and molasses tanks. He said that the amounts of valuation attributable to them have been agreed between Siuicre Eireann and the Valuation Office. All of the items, individually and collectively, are indispensable to the manufacturing process in the sugar factory. Mr. Killen outlined the valuation history of the subject property with particular reference to the Circuit Court appeals heard before Mr. Justice Fawsett in February 1988. He said that the respondent (Siuicre Eireann) appealed by way of case stated to the High Court in respect of heated oil tanks valued at £55 and diesel oil tanks valued at £15 and that a copy of the case stated is available for production by the Appellant Company's solicitor. He said that at a hearing of the said appeal by way of case stated Mr. Justice Hamilton, on the 5th October, 1988, ruled that the heated oil tanks were "non-motive power machinery" as per section 7 of the 1860 Act. He said further that an appeal was made to the Circuit Court in respect of the

annual revision published on the 31st December, 1986 by which the Valuation Act, 1986 was law and it was accepted by the appellants that the Diesel Oil Tank was rateable. The appeal was heard by Judge Murphy in Cork on the 7th December, 1988 and his decision was to exempt from valuation the following items:

> Sugar Silo No. 1, Sugar Silo No. 2, Sugar Molasses Tank, Heated Oil Tanks and Limekiln.

It has been indicated, he says, that the Commissioner of Valuation has appealed by way of case stated to the High Court against the decision of Judge Murphy. The hereditament was again the subject of an 1987 annual revision and following discussions he agreed the quantum rateable valuation with the Commissioner of Valuation subject to the matter of rateability of the items as follows: Sugar Silos, Nos. 1 and 2, Molasses Tank, Heated Oil Tanks and Limekiln. The submission by Siuicre Eireann is that these items should be regarded as non-rateable "Categories of Plant" as per section 8(1) Schedule Ref. (1) of the Valuation Act, 1986." He said that the said items are designed and used primarily to induce a process of change in the substance contained therein and that the items were therefore not rateable. (The Tribunal again notes that the Heated Oil Tanks and the Lime Kiln are not now being contested but feels that the history of the appeal should be complete.)

Secondly Mr. Killen said that the subject factory is registered under the Factories Acts, 1955 and is subject to annual inspection by personnel from the Department of Labour. It is an industrial undertaking and a "manufactory" within the meaning of Section 7 of the 1860 Act. He says that it is clear that the employment of the items in the various processes, in which they constitute an integral part, must not be viewed in a piecemeal situation and the process is only possible by the use of force by mechanical means. He said that the above items are collectively and individually indispensable to the processes and come within the general term "machinery" i.e. non-motive

power machinery as per Section 7 of the Annual Revision of Rateable Property Act, 1860 as amended and that they are thus not rateable.

With regard to the Cork County Council appeal No. 88/286 Mr. Killen said that the valuations are equitable and the only method whereby they can be increased is by general revaluation of all properties to be carried out in order that the "uniformity" as sought in the preamble of the Valuation Ireland Act, 1852 can be preserved.

B. Submission of Mr. Jim Lehane

Senior Technologist Siuicre Eireann Cpt.

A précis of evidence received on the 31st January, 1990 from Mr. Jim Lehane, Senior Technologist Siuicre Eireann Cpt.. Mr. Lehane is a member of the engineering staff of the sugar factory at Mallow, Co Cork. Mr. Lehane gives a detailed outline of converting beet to sugar under the following headings:

Roots are first washed,

The Beet is sliced,

Extracting the sugar juices,

Juice purification,

Carbonation and Filtration,

Filtering the juice,

Further purification,

Evaporation,

To the sugar cooks,

Centrifugal separators,

The white sugar is dried and screened

Sugar Silos

Mr. Lehane said that there were two sugar silos at the Mallow factory, one of 20,000 ton and the other 30,000 ton and he outlined the following details concerning them -

	20,000 Ton	**30,000 Ton**
Diameter	35 metres (114.8 ft.)	45 metres (147.6 ft.)
Shell Height	28 metres (91.9 ft.)	26 metres (85.3 ft.)
Volume	24,000 cubic metres	36,000 cubic metres
	(847,440 cubic ft.)	1,271,160 cubic ft.)

He said that the input sugar quality requirements are given as:-

Max. intake temperature	-	30 degrees centigrade
Max. percentage moisture		0.06%
Ash content max.		0.04%
Average grain size	-	0.40 m.m.

Mr. Lehane said that the structural part of the silo consists of a cylindrical shell, a central tower and a light conical roof, all erected on a concrete foundation. The central tower is made of steel plates and it houses in an accessible position the machinery for air conditioning, dust collecting and sugar transport. It also serves as a support for the radial roof trusses, a staircase and a rotating bridge. He said that the bridge spans the silo radially from a rail on the central tower to another on the shell. From the bridge is suspended a scroll conveyor which may be raised or lowered according to the level of the sugar in the silo, and is used to bring the sugar towards the central tower for reclaiming purposes, or to level off the top of the sugar at the time of filling to obtain maximum capacity. He said that the cylindrical shell is made from welded steel plates.

Mr. Lehane outlined the filling and reclaiming operations as follows:-

> The sugar coming in from the sugar dryers and screening plant goes by a conveyor in a tunnel to the central tower bucket elevator which lifts the sugar to an upper table or by

means of a top conveyor directly to the feed table rotating around the central tower. By means of ploughs the sugar is scraped off into chutes ending over disc sprinklers, placed on the slowly rotating bridge. The disc sprinklers make the sugar fall through the air in the conditioner like snow flakes thereby exposing the individual sugar crystals to a very intimate contact with the air, which has been conditioned to a suitable temperature and humidity by thermostat and hygrostat controlled radiators and air dryers. This final treatment improves the quality of the sugar and ensures conditioning of the product.

The sugar is evenly distributed over the entire horizontal area of the silo by running the scroll conveyor in such a manner that the circular sugar ridge formed below the disc sprinklers is moved towards the periphery. By this method of handling, the sugar becomes thoroughly mixed and so the silo also serves as a blender for the sugar in it. The quality of the sugar coming out of the silo is more homogeneous than the sugar going into the silo.

To reclaim the sugar, outlet gates at the base of the central tower are opened. The sugar falls into a lower feed table from which it is ploughed off into the reversible tunnel belt conveyor. The sugar is then brought either to the packing area or to the bulk loading station.

Mr. Lehane said that the sugar is conditioned by automatically controlled temperature and humidity equipment in the sugar silos. He said that the temperature control equipment consists of steam to air heat exchangers providing warm air which circulates around the sugar as follows - the warm air is drawn from the heat exchanger up through the silo centre through hollow section beams at the top of the silo and between the two cylinders which form the walls of the silo and return via pipes in the floor. He said that the direction of the warm airflow is reversed every hour thus ensuring an even temperature all over. The temperature is measured with accurate temperature measuring devices.

Mr. Lehane said that the humidity is controlled by humidity control equipment which draws a sample of air continuously into a measuring device which causes a very fine water spray to moisten the air which is circulated within the silo. He said that sugar being hygroscopic tends to absorb the moisture from the air as the sugar is being delivered to the silo. The humidity control equipment is also fitted with heating and refrigerating elements.

Mr. Lehane said that great care has to be taken when conditioning sugar in silos. All electrical equipment therein has to be flameproof.

Mr. Lehane in his précis went on to say that the packaging of sugar takes place after the silos i.e. the process is not complete until the sugar is conditioned through the silos. He said that the production of sugar is one continuous process from weighing-in until sugar leaves the silo and that every component mentioned along the way is integral to and essential for achievement of the production process. He said that each component was designed and is used primarily to induce the process of changing sugar beet into crystallised sugar of a quality to meet the varying demands of different users of the product or one of the other by-products. He attached as an appendix a chart of the various control readings and measurements which are taken.

Molasses Tanks

Mr. Lehane submitted that molasses is a by-product from the process of sugar manufacture. He said that it may be defined as the residual syrup from the process of manufacture of refining sugar from which no more sugar can by crystallised by conventional means. The material itself is a dark brown sticky substance and this is pumped to the molasses tanks. Mr. Lehane said that these are tanks of mild steel construction having a dome type roof and are fitted internally with steam heating/diluting coils to agitate the molasses as it is conditioned. He said that the tanks are fitted on the outside with pumps, heaters and dilution equipment.

Mr. Lehane said that the molasses tanks are intermediate apparatus in the process where the molasses is heated, diluted and agitated before being mixed with the beet pulp slices and dried in pulp driers utilising waste gas from the steam boilers plus heat produced from heavy oil furnaces. This product, he said, is sold to farmers as dried molassed beet pulp or is pelleted and sold as Beet Pulp Nuts. It is also used as the basis for upgraded Dairy, Beef and Sheep Nuts.

Mr. Lehane said that its consistency and flowability depends on the temperature of the material and its solids content.

While molasses remains as a liquid even at very low temperatures, he said, it cannot be handled by conventional means, unless it is heated, diluted and agitated to reduce the viscosity. He said that the temperature of molasses must be strictly controlled. Too high a temperature will destroy the sugar present and cause carbonization. This will also give a reduction in feed value.

He said that the heating, diluting and agitation of molasses is carried out at the molasses tanks where the molasses is received from the sugar refinery and processed before mixing with the pulp.

Mr. Lehane said that the molasses tanks are an indivisible and integral part of the machinery designed and used in the manufacture of the aforesaid by-products from sugar beet.

C. Submission of Mr. Frank O'Donnell

In a written submission dated the 29th January, 1990 on behalf of the appellant, Cork County Council, Mr. Frank O'Donnell B.Arg Sc. M.I.A.V.I., M.I.R.E.F., Principal of Frank O'Donnell & Company, Valuation and Rating Consultants said that the sugar factory was first built in 1935. He said that it has been repeatedly altered, updated and added to. He then outlines the recent valuation history. He then outlines the items, the rateability of which is in dispute as follows:

1. Sugar Silos

He says these are two steel wall structures with a total storage capacity of 50,000 tons and they consist of cylindrical shells with light conical roofs. They have diameters of 35 metres and 45 metres respectively and are approximately 27 metres high.

He said that the function of these silos is the storage of sugar and they substitute for the traditional pallet storage in the old sugar store. Sugar as an end product is a stable commodity and non-perishable when stored under the proper controlled environment. He said that it can be stored indefinitely given the proper storage conditions.

Mr. O'Donnell said that in the silos, the temperature and humidity are strictly regulated and the sugar is evenly distributed over the entire floor area. In this case the product entering the silo is sugar and likewise, the product leaving it is sugar. He said that the humidity and temperature control equipment attached to the silo serve to maintain the storage conditions at an optimum for safety and quality reasons. He quoted the Tribunal decision in the Mitchelstown appeals.

2. Molasses tanks

(3 tanks) total capacity 5,239 cu.m. (1,152,580 gals)

Mr. O'Donnell described these tanks as steel walled roofed tanks built on concrete platforms. He said that they are fitted internally with steam heating dilution coils and a compressed air line to agitate the molasses, outside there are pumps and heaters.

Mr. O'Donnell said that the function of these tanks is the storage of molasses which is a liquid by-product of the manufacture of sugar. It is an end product used as a supplementary foodstuff, or as an ingredient in further processing. He said that it is an organic product capable of deterioration and settlement and is difficult to handle at low temperatures. The heating, diluting and agitating equipment is used to maintain the viscosity of the molasses and so prevent any

process of change. He stated that the molasses is of the same nature and viscosity when it leaves the tanks as when it enters them.

D. Submission of Mr. Kieran O'Brien

Executive Chemist, Cork County Council

A written submission was received on the 1st February, 1990 from Mr. Kieran O'Brien, Executive Chemist, Cork County Council. Mr. O'Brien said with regard to the molasses tanks that molasses is a by-product from the process of sugar manufacture and is used mainly as a feed additive and should itself be considered a final product. It may also be used as a starting material for other chemical processes.

He said that molasses is received from the sugar refining process at an elevated temperature and stored at a constant elevated temperature and agitated to allow delivery for mixing with beet pulp as a cattle feed or for transportation for other uses. Mr. O'Brien said that no process change occurs during the storage time.

With regard to the Sugar Silos Mr. O'Brien said that there are 20,000 ton and 30,000 ton tanks in which sugar crystals are evenly distributed within the storage vent to ensure a balanced stress on the support structure for safe storage. He said that the method used for blending the sugar is to add sugar to what is already in the silo. This has the effect of lodging one layer of sugar on another and does not really blend the sugar as such.

Mr. O'Brien said that humidity and temperature control equipment attached to the Silo serve to maintain the storage conditions at an optimum for safety and quality reasons. He said that the process of producing sugar is completed after crystallising and drying of the pure white sugar before storage in the silos and that the sugar crystals do not under-go any further process change after the drying of the pure white sugar crystals.

E. Submission of Mr. Eoin Buckly,

Executive Engineer, Cork County Council

Mr. Buckly said that in the processing area the sugar is first extracted from the beet slices by means of diffusion. To remove the impurities from sugar, milk of lime and CO_2 are added to the diffused sugar. The milk of lime and Co_2 are products from the Kiln where the limestone and coke are burned. He said that in the processing area the sugar is concentrated and crystallised before being dried, screened and cooled. This is done before being sent to the silos. It is therefore evident that what goes into the silos is the finished product. Mr. Buckly said that in the sugar silos the temperature and humidity are strictly regulated and the sugar is evenly distributed over the entire floor area. He said, that in his opinion, however, these operations are to help keep the sugar properly conditioned and not to cause it to change in any way and that therefore he considered the silos to be basically storage units.

Mr. Buckly said that the by-products in the sugar process are beet pulp and molasses. The pulp is mixed with molasses and sold off as animal feed. The molasses may also be used in other chemical processes. It is stored in three tanks in which it is heated and agitated in order to maintain its viscosity.

F. Submission of Mr. Kevin Heery

A précis of evidence was received on the 1st February, 1990 from Mr. Kevin Heery B.Comm a district valuer with over 20 years experience in the Valuation Office. He said that he inspected the items at issue on the 20th January, 1990. Mr. Heery outlines the valuation history and goes on to describe the disputed items as follows.

1. Sugar Silos

Prior to the building of the sugar silos, sugar coming from the final process within the factory block, that is the sugar driers, was placed in 2 cwt sacks which were stacked on pallets within the sugar store. Pressure for improved hygiene standards led to the building of the sugar silos.

He said that silos are built at a distance from the factory and are connected to the factory by a conveyor system within conveyor housing. The final process in the manufacture of sugar is a drying action. This is carried out in a rotary driers. From the driers a continuous stream of sugar comes onto the conveyor which carries it towards the sugar silo for storage purposes.

He said that sugar silos at the Mallow factory are of 20,000 and 30,000 tons capacity respectively and this amounts to storage for approximately 3/4 of the output per annum. The other 1/4 is sold during the three months in which the factory is in production. The factory closes down for approximately nine months each year. The sugar silos are built of sheet steel walls and roof and are circular in shape with flat floor and dome roof. He said that the silos have a central shaft for access to the silo and a lifting apparatus to raise the sugar and allow it to be spread evenly within the silo by means of rotating arms.

Mr. Heery said that while sugar is in the silo, air at the predetermined temperature and moisture content is blown up through the sugar to maintain it fresh and dry. (Otherwise the sugar would become damp and solidify and could not be removed. It would become damaged.) He said that removal of the sugar is by gravity onto a conveyor which takes it to the packaging building or the bulk hoppered bins for bulk deliveries.

Mr. Heery then outlined the contention of the Commissioner as follows:-

(a) These sugar silos fall to be rated under the categories of plant introduced by the Schedule to the Act of 1860 inserted by the 1986 Act, Section 8(1)1.

(b) These sugar silos are designed and used primarily for storage and containment.

(c) The manufacture of sugar is complete when it leaves the rotary driers.

(d) The sugar is then conveyed to the silos for storage which may be for a considerable period of time

(e) These sugar silos cannot be excluded from rating by virtue of being "Designed or used primarily to induce a process of change in the substance contained or transmitted".

Molasses Tanks

Mr. Heery described these tanks as steel tanks with steel sides and roof on concrete platforms. He said that molasses is an end waste product of sugar refining. It is the juice remaining after all the sugar granules are removed. It is a rather thick syrup liquid, water may be added and mixed with it, for easy handling. Settling can also occur. He said that within the tanks are heating coils to keep the liquid viscous and agitators to prevent setting. The molasses is sold to farmers direct from the tanks or is used with the waste beet pulp to make animal feed (pulp nuts) in another part of the factory. He said that the tanks are designed and used primarily to store and contain the molasses and are therefore rateable. He quoted the High Court decision on a case stated - Pfizer Chemical Corporation and The Commissioner of Valuation.

Mr. Heery said that Siuicre Eireann, by mixing molasses with beet pulp slices and drying the mixture, produce dried molassed beet pulp and beet pulp nuts. The fermentation process in Pfizers and the mixing process in Siuicre Eireann does not take place within the molasses storage tanks.

G. Submission of Mr. Gerard J Holland

Chief Chemist, Mallow Sugar Factory

In a written submission received on the 9th March 1990 Mr. Holland said that he has been Chief Chemist at the Mallow Sugar Factory since 1974. His responsibilities include control of Process Control Laboratory - quality control of sugar and by-products; sugar, pulp products, molasses and process materials; sugar silo operations; production of 1 kilo packaging; bulk and bag dispatches; customer relations.

Mr. Holland said that, in the past, sugar was stored in 2 cwt jute and 1 cwt paper bags on tiers in heated stores. He said that this led to sweating of sugar in the bags because of migration of moisture to the surface of the sugar and resulted in severe caking. If the weather became warm, of it the sugar was transferred to customers with warm premises the sugar went solid. This sugar had to be broken up by being manhandled causing heavy losses.

He said that sugar ex this type of storage, ex tiers or direct from production, packed bags will go lumpy and sometimes totally solid in a short space of time, resulting in many complaints. He said that similarly stored or produced sugar without conditioning/blending cannot be exported in 20 tonne plastic lined Bell Containers as a resultant lumpy sugar is not capable of being off loaded. He said that customers demand sugar which is dry and free flowing and has a reasonable shelf life under normal kitchen conditions or conditions at customer premises. To meet the more exacting customer requirements Irish Sugar looked at various conditioner/blender silos available, including Weibull, Lucks and A.B.R. and weighed up and advantages and disadvantages and decided to purchase a Weibull Conditioner/Blender.

Mr. Holland said that the production of crystal sugar is a batch process carried out in batches of approximately 40 tonnes and because it is a batch process the size and uniformity of the crystals can vary from batch to batch.

He said that sugar coming from the centrifugals contains three types of moisture (a) free moisture; (b) bound moisture and (c) inherent moisture. He outlined each of these as follows:

(a) Free moisture is removed from the surface of the crystals in the dryer/cooler reducing the temperature of the crystals. This temperature can vary also but there is generally a difference of 10 degrees centigrade between the temperature of the cooled crystals and the ambient temperature.

(b) Bound moisture arises from rapid evaporation rate in the dryer/cooler causing some parts of the outer layer of the syrup film to crystallise. This film consists of invert sugar and possibly other non-sucrose material which are hydroscopic. There is an equilibrium established between this film and the atmosphere surrounding the crystals. A glaze is formed trapping some of the moisture near the surface of the crystal. This trapped or bound moisture when moved to the surface of the crystal causes the sugar to be moist and if rapid drying occurs severe caking of the sugar will occur.

(c) The inherent moisture is pockets of water contained within the sugar crystal and does not appear to cause a major problem in storing bulk sugar.

Mr. Holland said that conditioning is about removing some of the bound moisture and achieving an equilibrium between the moisture in the film and the atmosphere surrounding the crystals. He said that if this moisture is not removed when it comes to the outside of the crystal it becomes moist and subsequently the sugar becomes hard and caked.

Mr. Holland said that the relative humidity (R.H.) inside the silo is controlled by an air conditioning unit which takes air from inside the silo, checks the R.H. automatically, switches in a drying or humidifying function to obtain the preset R.H. and blows it back into the silo. The

R.H., he said,, is set at a value corresponding to the sugar moisture i.e. value where the vapour pressure of the air is equal to the vapour pressure of the sugar (equilibrium). The conditioner/blender silo is insulated with a dynamic insulation system. Mr. Holland said that the silo space is completely surrounded by heating or cooling air in the space between the silo shell and the ordinary insulation. The sugar crystals, he said, fall from the disc sprinklers through the conditioned air (temperature and humidity) to the bottom and by this process part of the bound moisture in the crystal is removed. The sugar is then evenly distributed in a thin layer over the entire horizontal area by the scrolls. This, he said, exposes the sugar to further conditioning by removing further bound moisture. This process is continued as further sugar is dropped into the silo as the scrolls churn up the sugar completing the conditioning process. Mr. Holland said that the conditioned sugar has now reached a state of equilibrium and this sugar can now be stored indefinitely. He said the blending of the various crystal sizes is achieved by the scrolls as it moves the sugar in and out of the silo.

Oral Hearing

The oral hearing took place at Dublin on the 5th and 6th day of September, 1990. Mr. Marcus Daly S.C., and with him Mr. Marcus F. Daly B.L. (instructed by O'Connor & Dudley, Solicitors) appeared on behalf of the first named appellants. Mr. William McKechnie S.C. (instructed by the County Solicitor, Cork County Council) appeared on behalf of the second named appellant and Mr. Aindrias O'Caoimh B.L. (instructed by the Chief State Solicitor) appeared on behalf of the respondent.

Evidence was given, as set out in his précis of evidence, by Mr. Lehane in relation to the physical construction of the sugar silo and three molasses tanks. Mr. Lehane did not give evidence in relation to certain matters concerning the chemical and quality control aspects of sugar and molasses handling. He suggested that this would be better left to Mr. Holland, Chief Chemist of the appellant company plant at Mallow, who subsequently gave evidence. Under

cross-examination Mr. Lehane stated that the total capacity of the silos was 50,000 tons. Before the recent rationalisation of the Thurles plant approximately 70,000 tons would be produced during the sugar beet campaign of manufacturing. Of this approximately 20,000 tons would be sold during the three to four month campaign and 50,000 tons would be stored in the silos until the end of the year. He stated that if sugar, which was removed from the sugar silo in its conditioned state, were stored in jute sacks using the old method, then problems of caking and sweating would emerge after about a month.

Mr. Lehane stated that the molasses tanks had an approximate capacity of 5,000 tons in total whereas the total production of molasses by the appellant company was in the region of 30,000 tons per campaign. Of the 30,000 tons of molasses produced annually 18,000 tons was further processed in the Mallow factory to be mixed with beet pulp and other animal feeds and 12,000 tons sold to outside customers. Molasses would usually leave the centrifugals at 60 to 80 degrees centigrade and would require to be blended prior to drying under controlled conditions in a dryer. This applies equally to cash sales of molasses or where it is used as a uniform product for mixing with pulp and animal feeds. This drying process, as it is a fixed process, requires that molasses be uniform in relation to moisture and other factors. If any variation in the quality of the mixed product to be dried occurred, by reason of a wide variation in the quality of molasses, severe problems of burning or under drying could arise. Hence, Mr. Lehane said, the need for adequate blending of the raw molasses in a bulk system arose in order to ensure an acceptable average composition of the molasses within certain specifications for mixing with the various types of animal feed. Customers buying molasses similarly required it to be blended to comply with certain standards. He said that Pfizer was one of the main customers for such molasses on a cash basis. This firm required light coloured molasses of a certain specification and the tanks are generally used in combination to ensure the correct blend to meet such standards. Tests are carried out on each half-ton batch of molasses coming off the centrifuges to facilitate the selection and blending of the combined bulk of molasses. Agitation was achieved through pumping. Previously facilities existed for the pumping of air through the molasses. These

facilities for pumping air through the molasses were not fitted in 1987 but since then such facilities have been fitted to two of the tanks.

Mr. Holland gave evidence relating to the characteristics of sugar given to it by bound moisture and to the effect that such bound moisture may have on the storage of sugar in bulk jute bags (as it was stored prior to the construction of the sugar silos) and in other forms of storage such as the domestic one kilogram bag, various bulk carriers, and silos associated with industrial users of sugar. He explained how the sugar dryer never eliminates bound moisture. He explained how it is possible, in the controlled conditions of the sugar silos, through the use of a controlled humidity at 65 with controlled temperatures, to ensure that the vapour pressure of the bound moisture in the grains of sugar is brought into equilibrium with the air outside it. He stated that if sugar is wet to an unsatisfactory degree coming off the sugar dryer into the sugar silos, the overseer will note such dampness by visual inspection by reason of his experience. No test is done for moisture content as the sugar leaves the dryer for delivery into the sugar silos, although, a test for the temperature of the sugar is carried out. He said that although bound moisture is of great significance to sugar it cannot be measured except under research conditions. He said that it is not measured in the appellant's factory in Mallow. The temperature of the sugar leaving the dryer is measured because it may be necessary to take corrective action to diffuse the effect of over heating. Mr. Holland claimed that sugar which was not conditioned in the manner provided for in the sugar silos would have a higher angle of repose, and would be less suitable for packing into one-kilogram bags than sugar which had been conditioned. He stated that sugar would always tend to establish an equilibrium between the vapour pressure in the sugar and that of the air outside. He claimed that in establishing the particular equilibrium of the vapour pressure of the sugar, stored in the sugar silos, and, in conditioning same, the sugar silos were primarily used to bring about a process of change.

In his evidence Mr. Holland concentrated on the blending and composition aspects of the molasses as it left the centrifuges and was delivered from the molasses tanks, for the various purposes of cash sales and further mixing with animal feed materials in the appellant's factory.

Mr. O'Brien gave evidence on behalf of the second named appellant and dealt with the processes by which touch welding and ultimate caking of sugar in storage can be effected. He stated that blending was not a design feature of the sugar silos and that the mere conditioning process described by the first named appellant's witnesses in their evidence and précis could be effected by plant and machinery costing much less than the two extensive silos in question. He stated that, prior to the installation of silos, the reason why sugar did not store well was that the atmosphere was not controlled, that the equilibrium in the vapour pressure between the sugar and the air outside was variable and hence there was a greater risk and inevitability of caking arising.

Counsel on behalf of the first named appellant submitted that the exemption from rating for non-motive power machinery was preserved in section 7 of the Valuation Act, 1986. He further submitted that if the sugar silos and molasses tanks were not so exempt as non motive power machinery but were deemed to be plant within the meaning of section 7 (2) of the said Act of 1986 such sugar silos and molasses tanks were excluded from rating as constructions affixed to the premises which were designed or used primarily to induce a process of change in the substance contained or transmitted therein.

The Tribunal finds that the sugar silo and three molasses tanks subject of this appeal are not entitled to an exemption from rating under the heading of non motive power machinery as they are not machinery in the commonly accepted sense of the term or as so found having regard to the law relating thereto by the Tribunal in other cases.

The Tribunal finds that there is a process of change induced in the sugar contained in the sugar silo. This process of change is the conditioning process averted to, and the bringing into equilibrium of the vapour pressure of the bound moisture of the sugar with the outside atmosphere of the silo, in monitored and controlled conditions. The sugar silo is designed and used for such process of change.

However the Tribunal finds that such process of change is not the primary use or designed purpose of the sugar silo for the following reasons:-

i bringing into equilibrium and conditioning are necessary for bulk storage.

ii bulk storage of 50,000 tons out of a total annual or campaigning production of 70,000 tons for the Mallow plant allows storage for a full years production after allowing for delivery out of the silo of sugar during the three to four month campaign.

iii the conditioning process only conditions and blends a small layer of material as the silo fills and blends only on the basis of achieving a slowly changing moving average blend as the auger or scrolls move up the filling silo, rather than achieving a planned defined average blend in the usually accepted sense of blending for commercial purposes.

iv the auger or scroll mechanism in the silo, while of advanced technical specification, is an absolutely necessary design feature of a sugar storage silo.

v the sugar sprinkler system is as important for ensuring uniform and safe storage conditions as it is for ensuring any process of change.

vi the establishment of the proper equilibrium in the sugar is as much a function of a controlled and closely monitored storage environment in the silo as it is of any process of change in the sugar itself.

The Tribunal finds that the three molasses tanks are storage tanks but that they are on balance (and perhaps finely so), used and designed to induce a process of change in molasses stored therein for the following reasons:-

i the seasonal production of the Mallow plant is 30,000 tons of molasses while the realistic capacity of the three tanks combined is about 5,000 tons. Hence the tanks cannot be justified or used in terms of an overwhelming storage requirement of the plant requiring all or most of the production to be stored for the rest of the year or the greater part of it, until disposed of or used.

ii the tanks are used for blending in an active way which is very immediately related to either customer needs for a defined set of standards relating to quality or the needs of the beet pulp or animal feed drying plant, requiring a feed of molasses, the moisture content of which must be within certain limits to avoid, on the one hand, a damp product, and on the other, scorched product coming off a dryer working at fixed or almost fixed temperatures.

iii three tanks are provided, with a network of pumps, interconnecting pipes, steam heated heaters and a mechanism allowing of the constant monitoring of batches of molasses for quality, when one large tank could provide the same storage facilities at a smaller cost.

iv the molasses tanks are not substantially dissimilar from the two tanks described in the Caribmolasses Company Limited case decided by the Tribunal on the 24th April, 1989

and which was the subject of a judgment of the High Court by way of case stated on the 24th January, 1990.

The Tribunal has thus decided that the sugar silos Nos. 1 and 2 are not exempt from rates and that the rateable valuations of same are respectively £275 and £412 and that for the reasons stated above the molasses tanks are exempt from rating and accordingly the Valuation Tribunal decides and adjudicates that the rateable valuation of the subject property ought to be £4,280.40.