

## 9F Thermal Oxidizer

The Thermal Oxidizer (TO) at Waterford Proteins has been over designed. When installed it was constructed to meet the Waste Incineration Directive when installed.

All TO's in Ireland have a retentive time of 0.75 seconds in the animal by-product sector.

	College Proteins	Dublin Product Limited (Dun Lavin)	Farragh Proteins	Premier Proteins
<b>Reg No.</b>	P0037-04	P0041-03	P0025-05	P0045-06
<b>Height above Ground (m)</b>	27	22	22	15
<b>Stack diameter (m)</b>	1.2	1.55	1.35	1.35
<b>Chamber operating temperature (°C)</b>	850	850	850	850
<b>Retention/Residence Time (s)</b>	0.8	0.8	0.8	0.8
<b>Oxygen for TO</b>	17%	17%	17%	No Value
<b>NO<sub>x</sub> (mg/Nm<sup>3</sup>)</b>	250	475	220	250
<b>SO<sub>x</sub> (mg/Nm<sup>3</sup>)</b>	400	500	370	400
<b>Particulates (mg/Nm<sup>3</sup>)</b>	30	30	90	30
<b>Odour (OU<sub>E</sub>/m<sup>3</sup>)</b>	1,000	No Value	No Value	No Value
<b>TVOC (mg/Nm<sup>3</sup>)</b>	10	20	No Value	10
<b>Volume per hour</b>	175,000	80,000	45,930	30,500
<b>Volume per day</b>	4,200,000	1,920,000	1,102,320	732,000
<b>RTO Capacity (kg/)</b>	15,800	15,600	No Value	33,000

This means that these installed TO above have to operate at a higher temperature to destroy odour. However, the TO at Waterford Proteins has been designed for a retention time of 2 seconds. Longer retentive time in the TO means odours can be eliminated at lower operating temperatures. The companies TO operates above 700°C to eliminate odour. All monitoring undertaken by the EPA and the company have shown that it meets the odour and VOC limits as part of its current licence reference. The company can demonstrate that operation at 700°C is more than adequate to destroy the odour and VOC associated with this process.

It is incorrect to state that BAT of 850°C is the correct temperature to operate a TO. In fact, it does not state a specific temperature or odour, in only details that a TO is a suitable technology for odour destruction. Clearly shorter retention of a half second and 850°C doesn't destroy odour. To achieve a

temperature of 850°C will also increase our fuel consumption by 15%, this will lead to an increase in our carbon footprint which has no environmental benefit to the operation of the TO.

The RTO at the installation currently operates with the temperature in the combustion zone of 700°C. This will ensure that VOC and Odour current from the TO meet current BAT standards. I refer to Table 6.1 of “BAT Guidance Note on Best Available for the Purpose of the Production of Food Products from Vegetable & Animal Raw Materials” accessed from the EPA website.

## 6.1 EMISSION LEVELS FOR DISCHARGES TO AIR

The BAT-Associated emission levels for emissions to air are as follows:

**Table 6.1: BAT-Associated Emission Levels for Emission to Air**

Constituent Group or Parameter	Emission Level (mg/m <sup>3</sup> )	Mass Threshold (g/hr) <sup>Note 1</sup>
Ammonia	30	150
Hydrogen Sulphide	3	15
Organic sulphides (Total as S)	2	
Amines (Total)	5	
Total Particulate Matter	5 - 50	> 200
	150	At mass flow up to 200g/hr
Total Organic Carbon (as C)	50	500
Hexane (solvent extraction) - Rapeseed and maize germ - Other seeds	2.0 kg/t of seed processed 1.5 kg/t of seed processed	
VOC (solvent fractionation and refining processes excl. degumming)	1.5 kg/t of fat or oil subject to fractionation	
VOC (degumming)	4 kg/t of fat or oil subject to degumming	
Other	--	Note 2

Furthermore, other IED facilities (Reg No. P0856-02) can operate TO for the destruction of VOC at lower temperatures. ABP has invested in a larger unit to reduce both its carbon output and elimination of odours. The company respectfully requests to take this into consideration.