# OFFICE OF CLIMATE CHANGE, LICENSING & RESOURCE USE

## INSPECTORS REPORT ON A LICENCE APPLICATION

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| **To:** | Directors | |
| **From:** | Donal Grant | **- ENVIRONMENTAL LICENSING PROGRAMME** |
| **Date:** | 16 AUGUST 2007 | |
| **RE:** | APPLICATION FOR AN IPPC LICENCE FROM SCHLOTTER (IRELAND) LTD., TOUGHER BUSINESS PARK, LEWISTOWN, NAAS, CO. KILDARE, LICENCE REGISTER NO. P0814-01. | |

| Application Details | |
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| Class of activity: | 5.13 |
| Section 85(1)b or 87(1)b or 90(1)(b) notice sent: | No |
| Licence application received: | 28-Nov-2006 |
| Notices under Article 11(2)(b)(ii) issued: | 15-Jan-2007, 02-May-2007 |
| Information under Article 11(2)(b)(ii) received: | 27-Mar-2007, 28-May-2007, 20-June-2007, 04-July-2007 |
| Notice under Art 13 issued: | No |
| EIS received: | 28-Nov-2006 |
| Supplementary material submitted by applicant | No |
| Submissions received: | None |
| Site notice inspected: | 25-Jan-2007 |
| Site visit: | 25-Jan-2007 |

### Company

Schlötter Ireland Ltd. is involved in the manufacture and distribution of high purity chemicals and related equipment for the electroplating, semiconductor and pharmaceutical industries. The company was set up in 1976 to service the Irish

market and operated as Galvanocor (Ireland) Ltd., until 2002 when the company name was changed to Schlötter Ireland.
The applicant proposes to develop and operate a new modified facility away from its existing site in the centre of Newbridge (where it operates under an existing IPPC licence, Register No. P0087-01) to Tougher Business Park, Lewistown Naas. They initially applied for a new licence for a Class 5.4 activity (the manufacture of inorganic chemicals), as 95% of the chemicals they intend to produce on site are inorganic. Having reviewed the application and the processes undertaken at the installation, I believe it is more appropriate to licence the applicant for Class 5.13 (b), (c) & (d) activities, rather than Class 5.4 as it better describes the activities carried out on site. A small number of batches of organic chemicals will also be produced each year, however as they will only constitute 5% of annual production, the applicant will not be licensed under Class 5.12.

The site for their proposed development is located approx. halfway between Newbridge and Naas in Tougher Business Park. It is currently in use as agricultural land and is situated close to an existing Mill in the Business Park. Planning permission has been granted by Kildare County Council for the proposed development and the site will be fully serviced in terms of roads, mains water and sewage works.

The processes involved in their existing and proposed plants include chemical synthesis, electrolysis and blending operations to produce chemical mixtures to enhance the performance or make up of chemical solutions. They plan to operate the proposed plant Monday to Friday, from 08:00 to 18:00 and will employ approximately 40 people.

## Process Description

Electrolysis, Chemical Synthesis and Blending/Mixing are the three primary processes proposed for the new site. Filtration of the product and the filling of containers for shipping will also take place.

Electrolysis Operation: twelve electrolysis unit tanks with a volume of 1700litres each are to be installed. The electrolytic solution is a solution of methanesulfonic acid in water and organic solvents are not used. The anode for the majority of processes is tin. The current will cause the metal of the anode to dissolve and in that manner it will convert to a metal salt and will form part of the desired electrolytic solution. The reaction is carried out at ambient temperature. As long as current is connected to the electrolysis unit, small amounts of hydrogen will be generated on the cathode. This hydrogen will be removed by a fan and will be emitted to the atmosphere. VOC's will not be emitted as organic solvents are not used. All electrolysis units will be bunded, so that leaks will be contained and can be dealt with. In case of a power failure, the units will automatically revert to a safe state and no more hydrogen will be generated.

Chemical Synthesis Operation: Schlötter only perform one type of chemical reaction and the products form less than 1% of total annual output from the site. As with the electrolysis unit operation this reaction is primarily water based. A mixture of 500kg of water with 50kg of methanol is used as solvent, in which Epichlorohydrin is reacted with an organic amine in a 1:1 ratio, at a reaction temperature of 85ºC. A vent condenser will reduce the minor methanol emissions from this reaction and the condensate will be returned by gravity back into the vessel, so that no solvent is lost.

Blending / Mixing Operation: Two liquids or a liquid and a solid are mixed to form a uniform liquid. Mixing temperatures are ambient. Emissions from this operation are minimal and all blending tanks are connected to a scrubber. The blending operations comprise 95% of the production on site.

Filtration Operation: Emissions from this operation are minimal (fugitive only). All filtration operations are to be carried out in the production area, so that any spillage ends up in the wastewater treatment plant for further treatment.

Filling Operations: Filling operations at Schlötter are a manual operation. The product is filled into drums and containers of a volume typically not greater than 400 litres. All filling operations are to be carried out in the production area. Spillages and leaks are easily treated by direction to the effluent treatment plant.

Laboratory Facilities: The function of the laboratory is to carry out customer analysis, research and development, to perform in-process and final testing for products manufactured on site and to carry out effluent analysis. Testing is carried out by wet chemical methods (Acid-Base and other simple titration), Atomic Absorption Spectrophotometry, UV/VIS Spectrophotometry and plating tests. The laboratory will be plumbed into the effluent system. Materials which cannot be treated will be stored separately for offsite disposal. When sufficient quantities have been collected, the material will be disposed of by a specialist chemical waste disposal company.

## Emissions

### Emissions to Air

The main air emissions from the proposed activity are associated with the two on-site boilers. An extensive survey was conducted by AWN Consulting on the emissions and performance of both of these boilers. They found that owing to their relatively small output (200kW & 650kW respectively) and the nature of their fuel (natural gas), the boilers should not be significant sources of pollutants. Modelling results for $NO_2$ and CO indicated that the ambient ground level concentrations are below the air quality standards (as detailed in Directive 1999/30/EC relating to limit values on sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air) under both typical and maximum operation of the proposed facility.

Four other emission points arise from the venting of emissions from the reaction vessels in the production building. All are considered minor emission points due to the results of emission monitoring tests conducted on existing equipment. Monitoring data from scrubbers at the existing licensed site indicate that emissions from the blending and reaction tanks at the new site would be well below the mass flow threshold and emission concentration levels specified in the Draft BAT Guidance Note for the General Inorganic Sector. The applicant proposes to treat these emissions with three types of selective chemical reaction scrubbers. The first type of scrubber is for the abatement of ammonia fumes. The scrubber works by reacting weak sulphuric acid with any ammonia fumes to form a solid material (ammonium sulphate). The applicant does not intend to run this scrubber constantly and its usage is expected to be around 14 hours per week depending on orders for certain products. The second type of scrubber to be installed will be for scrubbing potential fumes of hydrochloric acid. This scrubber causes the fumes of HCl with NaOH to react chemically to form a solid (NaCl). Again, like the ammonia scrubber, the HCl scrubber's usage will be dependent upon orders for certain

products but it is expected to operate for at least ten hours per week. The solid waste from both scrubbers will be transferred to the effluent treatment plant where it will be dewatered and taken offsite by an approved waste contractor. The quantity of ammonium sulphate and NaCl is expected to be less than 2kg per month.

The third type of scrubber contains NaOH and is attached to a number of reactor vessels. This scrubber is a precautionary measure in case of a fire during a reaction. It is also to be considered a minor emission point as no emissions are expected during normal operations and it shall not be subject to the same monitoring requirements as the other three scrubbers. The applicant has stated that they have been operating this process for over twenty years and have never had any incidents.

These abatement measures are considered BAT for these operations in the BREF note on the Manufacture of Organic Fine Chemicals. Details of the monitoring parameters for these scrubbers are contained in Schedule C: Control & Monitoring of the Recommended Determination.

## Emissions to Sewer

The two waste water streams on site (sanitary waste & treated trade effluent) will discharge to the main foul sewer at the same point at the site boundary. Monitoring of the treated effluent (monitoring point SE1) for flow, pH, and temperature will be continuous as it leaves the final tank of the effluent treatment plant. All other parameters as outlined in Schedule B.3 of the RD will be monitored on a batch basis. The existing foul sewer feeds to Osberstown Waste Water Treatment Plant which has recently been upgraded and has adequate capacity to accommodate any effluent arising from the propose facility. The Water Services Authority have specified emission limit values and monitoring requirements which have been included in Schedules B.3 and C.3.2 of the RD.

The proposed effluent treatment plant will be constructed to adequately store and treat the liquid wastes generated from processes, floor washings, spillages, etc. Due to the batch nature of the operations and low liquid waste volumes, maximum flowrates of $4m^3$/day and $1m^3$/hour are proposed by the applicant.

## Emissions to Surface Water

The surface water collected at the site is to be directed to an attenuation tank and from there it feeds into a local stream, which flows along the western boundary of the Business Park before joining the River Liffey. The surface water will pass through pH meter valves, treatment tanks (if necessary) and oil/petrol interceptors prior to discharge to the stream and any contamination will trigger the valves to close and divert the flow to the effluent treatment plant. During the development phase of the project the storm water will also contain a silt trap to help reduce the solids loading of the stream. Sufficient capacity will be in place to store contaminated surface water until it is ready for treatment, should the need arise. Control and monitoring of the site surface water is detailed in Conditions 6.10 & 6.13 of the RD. Monitoring parameters are detailed in Schedule B.2.

## Emissions to groundwater

The entire site will be constructed of hardstanding material and the unloading areas are protected by a spill collection sump so no emissions to ground are expected. The regular monitoring of groundwater for contamination may be negated by virtue

of the recent extensive development in the Business Park and the size and nature of the underlying aquifer. Given the regional importance and high vulnerability of the aquifer and the nature of the processes carried out on site (chemical storage and use), Condition 6.14 and Schedule C.3.3 of the RD state that the applicant must conduct regular groundwater monitoring and outlines the necessity for the development of an appropriate infrastructure and monitoring programme.

Two working boreholes for the extraction of water are located in the Business Park and the applicant proposes to utilise these for their water needs only.

Waste

All hazardous wastes generated on-site (primarily heavy metal sludge from the effluent treatment plant) will be collected and disposed of off-site by approved waste contractors. No on-site recovery or disposal of waste, either hazardous or non-hazardous, will take place on the proposed site. Plastic, metal and paper/cardboard will be separated and recycled off-site. All remaining solid waste from the factory, canteen and offices will go to disposal (approx. 50 tonnes landfilled per annum).

Noise

The applicant employed AWN Consulting to conduct a comprehensive noise survey at the existing and proposed sites and to predict the noise levels at the nearest sensitive receptors (NSRs) once the new facility is fully operational. They concluded that predicted noise levels at the three nearest NSRs are significantly (>20dB $L_{AEQ}$) below the daytime emission limit of 55dB $L_{AEQ}$ as set out in the EPA Guidance Note for Noise in Relation to Scheduled Activities. In order to establish a baseline for futures surveys, AWN measured the noise levels at the three NSRs before any work had begun on the site. Due to the proximity of the M7 motorway and the R445, the measured noise levels at the same NSRs were actually above 55dB $L_{AEQ}$ on several occasions. No tonal or impulse noise is expected at the site and as it will only operate during normal daytime working hours, AWN concluded that there will be no significant noise impact on the existing environment. Monitoring and control requirements for noise are outlined in Condition 6.15 of the RD. Emission limit values are listed in Schedule B.4.

## Use of Resources

- Fuel

The two boilers on the existing site used between 90 and 100$m^3$ of natural gas on average every year for the last five years. These boilers or boilers of equal size are proposed for the new facility and will generate 120,000kWh of energy. No other fuels will be consumed on site.

- Electricity

The proposed site is expected to use approximately 700,000kWh of electricity per annum.

- Water

Approximately 1000$m^3$ of potable water (including water to be demineralised for use in the manufacturing processes) will be consumed on the site per year.

- Materials

Schlötter expect 1500 tonnes of raw materials to be consumed on-site every year. These include both List I and List II substances from the Dangerous Substances Directive (76/464/EEC). The List I substance is used only in laboratory analysis and is kept at a minimal level.

## Compliance with EU Directives

### IPPC Directive (91/61/EC)

This installation falls within the scope of category 4.2 of Annex I of Council Directive 96/61/EC concerning integrated pollution prevention and control. The Recommended Determination (RD) as drafted takes account of the requirements of the Directive. BAT is taken to be represented by the guidance given in the Draft BAT Guidance Note on Best Available Techniques for the General Inorganic Sector and the Production of Alumina, Final Draft, October 2006. Regard was also had to the guidance given in the Technical Instructions on Air Quality Control - TA Luft, 2002.

### Air Quality Directive (1999/30/EC)

Having regard to Council Directive 1999/30/EC, Schedule C.1.2 of the licence sets out monitoring requirements for the on-site boilers.

### Seveso Directive (96/82/EC)

In Question 11 of the IPPC licence application form the applicant has given details of the assessment of on-site storage with the requirements of S.I. No. 476 of 2000. The assessment concludes that the activity is classified as not requiring compliance with Articles 6,7 and 9 of the Seveso II Regulations.

### Dangerous Substances Directive (76/464/EEC)

Only 1 chemical (Potassium Ferrocyanide), which is found on List I of the Dangerous Substances Directive, is used on site. It is used only in the laboratory and is kept at a minimum level.

### Habitats Directive (92/43/EC)

The site is located in Tougher Business Park and is currently a Greenfield site. The surrounding countryside is mostly flat, agricultural land and the nearest sensitive receptor is 370m to the southeast of the site. The Grand Canal, which is a proposed National Heritage Area, is situated approx. 1km to the south of the site, however it is separated from the site by the M7 motorway. A full EIS accompanied the licence application and concluded that the proposed development will have a negligible effect on the local habitat.

## Best Available Techniques (BAT)

I have examined and assessed the application documentation and I am satisfied that the site, technologies and techniques specified in the application and as confirmed, modified or specified in the attached Recommended Decision comply with the requirements and principles of BAT. I consider the technologies and techniques as described in the application, in this report, and in the RD, to be the most effective in achieving a high general level of protection of the environment

having regard - as may be relevant - to the way the facility is located, designed, built, managed, maintained, operated and decommissioned.

## Environmental Impact Statement

I have examined and assessed the EIS and having regard to the statutory responsibilities of the EPA, I am satisfied that it complies with Article 94 and Schedule 6 of the Planning and Development Regulations 2001 (S.I. No. 600 of 2001) and EPA Licensing Regulations (S.I. No. 85 of 1994, as amended).

## Fit & Proper Person Assessment

The applicants experience, technical abilities, financial and legal standing would qualify them as Fit & Proper Persons.

## Compliance Record:

Having consulted with the inspectors in OEE dealing with the IPPC licence for the existing site, they have always found Schlötter to be a compliant and co-operative company.

## Complaints

No complaints have ever been received by the Agency regarding Schlötter. They have received several complaints from neighbours regarding odours in the area but it was never proven that the odours came from the existing site. Schlötter personnel regularly monitored for odours around site and at neighbouring premises but never found any odours which could be attributed to any of Schlötter's processes.

## Submissions

There have been no submissions regarding this application.

## Recommended Determination (RD)

The RD incorporates a number of conditions specific to this site aimed at ensuring that risks to the surrounding environment are minimised. In order to mitigate against potential impacts to the atmosphere all extracted foul air shall be treated in an appropriate manner. Conditions 3.3 & 3.5 of the RD specify the infrastructural requirements necessary for the monitoring of all emissions from the production reactor vessels, and Condition 6.1 details the required time-frames for the completion of all necessary works and testing regimes.

I am satisfied that the conditions set out in the RD will adequately address all emissions from the facility and where the activity is carried out in accordance with the conditions, it will not cause environmental pollution or nuisance to the local residents.

## Charges

The appropriate fee of €7618 has been received by the Agency from the applicant. The licensee shall pay an annual enforcement contribution to the Agency of €10,495.

## Recommendation

I recommend that a Recommended Determination be issued subject to the conditions and for the reasons as drafted in the RD.

Signed

Donal Grant

Procedural Note

In the event that no objections are received to the Proposed Determination of the application, a licence will be granted in accordance with Section 87(4) of the Environmental Protection Agency Acts 1992 and 2003 as soon as may be after the expiration of the appropriate period.