



SELOXIUM

Non-Technical Summary

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Seloxium Limited

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1 Project Description

Seloxium Limited (Seloxium) is a pioneering, University of Oxford spin-out company, dedicated to advancing innovative solutions for resource recovery from waste and sustainable practices in the mining, refining and metallurgical industries. Seloxium has developed a proprietary technology that offers an environmentally friendly solution to purify industrial waste streams. This technology, called Selectal™, selectively removes metal contaminants, enhancing sustainability and efficiency in waste management.

Based on successful trials to be completed at the end of 2024, Seloxium are seeking permission to operate a permanent waste treatment facility for the processing of precious metal containing aqueous and organic waste. The waste will be processed to recover the precious metals as part of the circular economy.

The processing of the waste will use adsorption of the precious metals using Selectal™ material to immobilise the precious metals as a solid. The precious metals will bind onto the adsorbent materials and be filtered off to separate it from the bulk liquid waste material.

In all instances, sample of the waste will be evaluated in the onsite laboratory to identify the best processing route before any bulk materials is received onsite.

The following provides a description of the waste material and technical standards that will be followed during the initial research campaign.

2 Description of Waste

2.1 Waste Type

The following waste types will be accepted onto site:

| Waste Code | Description of Waste |
|------------|--|
| 01 03 04* | acid-generating tailings from processing of sulphide ore |
| 01 03 05* | other tailings containing hazardous substances |
| 01 03 06 | tailings other than those mentioned in 01 03 04 and 01 03 05 |
| 01 03 07* | other wastes containing hazardous substances from physical and chemical processing of metalliferous minerals |
| 16 03 03* | inorganic wastes containing hazardous substances |
| 16 03 04 | inorganic wastes other than those mentioned in 16 03 03 |
| 16 03 05* | organic wastes containing hazardous substances |
| 16 03 06 | organic wastes other than those mentioned in 16 03 05 |
| 16 08 01 | spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07) |
| 16 08 02* | spent catalysts containing hazardous transition metals or hazardous transition metal compounds |
| 16 08 03 | spent catalysts containing transition metals or transition metal compounds not otherwise specified |

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| 16 08 04 | spent fluid catalytic cracking catalysts (except 16 08 07) |
| 16 08 05* | spent catalysts containing phosphoric acid |
| 16 08 06* | spent liquids used as catalysts |
| 16 08 07* | spent catalysts contaminated with hazardous substances |
| 16 10 01* | aqueous liquid wastes containing hazardous substances |
| 16 10 02 | aqueous liquid wastes other than those mentioned in 16 10 01 |
| 16 10 03* | aqueous concentrates containing hazardous substances |
| 16 10 04 | aqueous concentrates other than those mentioned in 16 10 03 |
| 07 04 01* | aqueous washing liquids and mother liquors |
| 07 04 08* | other still bottoms and reaction residues |
| 07 06 01* | aqueous washing liquids and mother liquors |
| 07 06 08* | other still bottoms and reaction residues |
| 07 07 01* | aqueous washing liquids and mother liquors |
| 07 07 08* | other still bottoms and reaction residues |

2.2 Maximum Quantities to be Processed

- The total quantity to be treated is 250 tonnes/year.

2.3 Storage Methods

- A maximum of 10,000kg of unprocessed waste will be delivered and stored on site at a time.
- The waste will be delivered in 1000L IBCs or 55 gallon drums.
- The material will be stored in the containers it is delivered in until processing starts.
- The waste materials will be stored in a secure chemical store on the Wilton Site. The chemical store is within the security fence of the Wilton Site and is segregated from vehicle traffic to prevent damage to the storage containers. The chemical store has its own independent drain system that is isolated from the surface drainage system on the wider Wilton Site. This will prevent water contamination in the event of a chemical spill. Chemical spill kits and bunds will be available to contain any spillages.

2.4 Maximum Treatment Quantities

- 1,000-2,000 kg of waste will be processed each day. Five to ten batches will be run over 10 working days to complete processing of the 10,000kg of stored waste stated in Section 2.3. Once the full 10,000kg of stored waste has been processed, the process equipment will be shut down. A registered waste handling company will then be arranged to take the processed waste offsite. The next 10,000 kg shipment of waste will then be arranged for delivery.

2.5 Maximum Storage Times

- The processed waste will be stored on site for a maximum of 90 days.

3 Technical Standards

3.1 HSE

- HSG51 - Storage of flammable liquids in containers
- HSG140 - Safe use and handling of flammable liquids
- C736F - Containment systems for the prevention of pollution
- HSG143 - Designing and operating safe chemical reaction processes.
- COSHH - Control of substances hazardous to health (Sixth edition)

3.2 Environment Agency

- 3.0 Waste pre-acceptance, acceptance and tracking appropriate measures
- 2.0 General management appropriate measures
- 5.3 Record keeping for all treatment residues
- 6.1 Point source emissions to air
- 8.1 Energy efficiency (installations only)
- 7.1 Emissions to air
- 6.5 Fugitive emissions to land and water

3.3 Other Technical Standards

- Chemical waste: appropriate measures for permitted facilities.

4 Environmental Risks

4.1 Highest Ranked Environmental Risks

- 1) Loss of waste containment leading to contamination of water or land. This can occur during waste delivery, waste offloading, storage, transfer into the processing unit, processing itself, transfer back to storage, waste loading and transport offsite. This risk is mitigated through effective process design as per HSG143, safe containment of material as per C736F/HSG140 and adequate storage of material as per HSG51.
- 2) Fugitive emissions to air during processing. The most likely, although improbable, cause of this is failure of the emission control and ventilation system. This risk is mitigated through effective process design as per HSG143, adoption of Best Available Techniques (BAT) as per S5.06 and a recorded system of preventative maintenance and inspection.

4.2 Sensitive Receptors

The permitted location is 100m from the nearest office block and 1 km from the nearest residential site. It is situated within the Wilton Centre which is located within the boundary of the larger Wilton International site. This site is home to multiple large-scale chemicals, energy from waste and material processing facilities. As such, the size of the proposed processing activity is not expected to cause an additional burden on the local population with respect to noise, odour and environmental impact. Additionally, all processing operations will take place within existing buildings on the site which ensures all noise, odour and fugitive emissions will be controlled to not cause nuisance. There are no known sensitive, ecological or wildlife sites in the immediate area.

5 Additional Documentation

Refer to document SLXDOC-04-EA-B2-6 for a detailed description of the processing operation and environmental risk assessment.

6 Document History

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