

# Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

---

Duvelco Limited  
Units 1-3 Jubilee Site  
Ivy House Road  
Stoke-on-Trent  
ST1 3NW

**Permit number**

EPR/WP3406BP

# Units 1-3 Jubilee Site

## Permit number EPR/WP3406BP

### Introductory note

#### **This introductory note does not form a part of the permit**

The main features of the permit are as follows.

This permit authorises the operator to perform the following listed activity and directly associated activities at Units 1-3 Jubilee Site:

- Listed activity:
  - Section 4.1 A(1)(a)(viii) Producing organic chemicals such as plastic materials – polymers
- Directly associated activities (DAA):
  - Solvent recovery for re-use in the process
  - Surface water management
  - Waste storage pending off-site disposal
  - Process cooling and heating
  - Process vacuum system
  - Process compressed nitrogen gas system

The permit allows the operator to produce a maximum quantity of 95 tonnes per annum of polyimide polymers using batch production in up to three production vessels, with individual capacities of up to 1,500 litres, with on-site recovery of the Class B volatile organic compounds (VOCs) used in the process in an integrated solvent recovery process.

Polymer production is by batch reaction in aqueous or solvent/aqueous media. The production process will involve reaction of starting materials pyromellitic dianhydride (PMDA) and 4,4'-oxydianiline (4,4'-ODA) with Class B VOCs as solvents in closed reaction vessels to produce the polyimide plastic material. Other additives used as 'fillers' will be incorporated into the product.

The integrated solvent recovery process is a continuous distillation process, consisting of two 1,200 litre vacuum distillation units. The process has a total capacity of 20 tonnes per 24 hours period and maximum annual processing capacity of 2,800 tonnes, to recover solvents for re-use in the polymer production process. The permit limits the quantity of used solvent stored pending recovery to 10 tonnes at any one time.

Process related energy requirements rely on electrical power taken from the local electricity supply grid and there are no combustion plant on the installation. Process heating and cooling systems are closed loop, indirect heat transfer systems using diathermic heating oil and glycol/water mix heat transfer fluids respectively. Process vacuum is provided using closed circuit liquid ring vacuum ring pump with a mechanical seal or a piston type pump with indirect water cooling. Process compressed nitrogen is provided by a pressure swing absorption (PSA) nitrogen generator utilising high efficiency variable speed compressors. Compressed nitrogen is used for reactor and line purging, vacuum drying, pneumatic valve operation and to meet instrument compressed gas requirements. There is no compressed air system for the facility.

Emissions from the permitted activities include emissions of substances to air, noise, waste and uncontaminated surface water from rainwater run-off.

Emissions to air are controlled and minimised by a range of facility design, process design, process control and abatement techniques. Abatement techniques include condensation of volatile substances and aqueous scrubbing combined with active carbon filtration for all emissions to air from processes and the process

areas within the building. All significant potential point and fugitive emission sources are abated in the facilities exhaust abatement system before release to air from stack emission reference A1 located on the building roof one meter above roof level. Potential point source emissions to air include Class B VOCs, at levels which have been assessed unlikely to cause significant impact with respect to the potential impact on ecological and human health receptors. The operator has a leak detection and repair (LDAR) programme and all potential fugitive emission sources are contained within the negative pressure area of the process building with local exhaust ventilation (LEV) abated before release to air.

Noise emissions have been assessed and do not present a risk of significant impacts at sensitive receptors.

Wastes arising from the permitted activities and general site activities are segregated and stored on-site, within the main building, pending collection for off-site recovery/disposal. Storage is in defined areas with containment designed to minimise the risk of spills. Up to 3,000 litres of solvent wastes which are unsuitable for recovery on-site (including residues from the distillation units) and up to 3,000 litres of collected process related waste waters may be stored on-site pending collection for off-site recovery or disposal.

There are no emissions of trade effluents to sewer or surface water from the site. Domestic waste water arising from the site is discharged to foul sewer. Uncontaminated rainwater run-off from the main building roof and the yard area to the north of the building is collected and released to the area clean surface water drainage system which discharges to the River Trent. The operator has management procedures in place to minimise the risk of contamination of surface waters and the permit requires daily visual inspection of the discharge of surface water from the yard area.

The site is located in an industrial area and is surrounded by industrial facilities with the nearest residential area located 100 m to the south of the installation boundary. There are no designated habitats directive sites within 10 km of the installation and no Sites of Special Scientific Interest (SSSI) located within 2 km of the installation. There are five Local Wildlife Sites (LWS) and one Local Nature Reserve (LNR) within 2 km of the site, the nearest site being Berryhill Ponds LWS with nearest approach 170 m southeast of the installation.

The operator has an environmental management system which will be developed to meet the requirements of ISO 14001:2015 during plant commissioning. The operator is seeking to have the system independently certified to the ISO 14001:2015 within 12 months of commencing operations.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application EPR/WP3406BP/A001	Duly made 05/10/2020	Application for organic chemicals production plant with on-site solvent recovery process.
Additional information received	13/10/2020	Revised Odour Management Plan reference OMPv1.0.
Additional information received	18/11/2020	Response to Schedule 5 Notice issued 04/11/2020: confirmation that all potentially polluting substances are stored within the main building; revised site drainage plan; surface water and firewater management techniques; detailed technical description including BAT assessment for the solvent recovery process; demonstration that the installation is not subject to the COMAH regulations; and updated environmental risk assessment.
Additional information received	01/12/2020	2012 Ground Investigation and Reclamation Strategy Report.

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Additional information received	15/12/2020	Response to Schedule 5 Notice issued 15/12/2020: confirmation of integration of the solvent recovery process with polymer production.
Additional information received	20/01/2021	Response to Schedule 5 Notice issued 19/01/2021 describing the compressed nitrogen supply system, updated the site layout plan and providing additional risk management techniques relating to the facility exhaust abatement system.
Permit determined EPR/WP3406BP (PAS Billing ref. WP3406BP)	01/02/2021	Permit issued to Duvelco Limited.

End of introductory note

# Permit

## The Environmental Permitting (England and Wales) Regulations 2016

### Permit number

**EPR/WP3406BP**

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

**Duvelco Limited** (“the operator”),

whose registered office is

**Ivy House Foundry**

**Hanley**

**Stoke-on-Trent**

**ST1 3NR**

company registration number 12422228

to operate an installation at

**Units 1-3 Jubilee Site**

**Ivy House Road**

**Stoke-on-Trent**

**ST1 3NW**

to the extent authorised by and subject to the conditions of this permit.

<b>Name</b>	<b>Date</b>
<b>Claire Roberts</b>	<b>01/02/2021</b>

Authorised on behalf of the Environment Agency

# Conditions

## 1 Management

### 1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
  - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

### 1.2 Energy efficiency

- 1.2.1 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
  - (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
  - (c) take any further appropriate measures identified by a review.

### 1.3 Efficient use of raw materials

- 1.3.1 The operator shall:
- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
  - (b) maintain records of raw materials and water used in the activities;
  - (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
  - (d) take any further appropriate measures identified by a review.

### 1.4 Avoidance, recovery and disposal of wastes produced by the activities

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
  - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
  - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

## **2 Operations**

### **2.1 Permitted activities**

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

### **2.2 The site**

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

### **2.3 Operating techniques**

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

- (a) the nature of the process producing the waste;
- (b) the composition of the waste;
- (c) the handling requirements of the waste;
- (d) the hazardous property associated with the waste, if applicable; and
- (e) the waste code of the waste.

2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

### **2.4 Improvement programme**

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

### **2.5 Pre-operational conditions**

2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4A have been completed.

## **3 Emissions and monitoring**

### **3.1 Emissions to water, air or land**

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

### **3.2 Emissions of substances not controlled by emission limits**

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
  - (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
  - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

### **3.3 Odour**

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

### **3.4 Noise and vibration**

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
  - (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
  - (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

### **3.5 Monitoring**

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:



- (a) point source emissions specified in tables S3.1 and S3.2;
  - (b) process monitoring specified in table S3.3.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 and S3.2 unless otherwise agreed in writing by the Environment Agency.

## **4 Information**

### **4.1 Records**

- 4.1.1 All records required to be made by this permit shall:
- (a) be legible;
  - (b) be made as soon as reasonably practicable;
  - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
  - (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
    - (i) off-site environmental effects; and
    - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

### **4.2 Reporting**

- 4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
  - (b) the annual production /treatment data set out in schedule 4 table S4.2; and
  - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

## 4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
  - (i) inform the Environment Agency,
  - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
  - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
  - (i) inform the Environment Agency, and
  - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

- (a) any change in the operator's name or address; and
- (b) any steps taken with a view to the dissolution of the operator.

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);

- (b) any change in the operator's name(s) or address(es); and
- (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

- (a) the Environment Agency shall be notified at least 14 days before making the change; and
- (b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days' notice before implementation of any part of the site closure plan.

## **4.4 Interpretation**

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

# Schedule 1 – Operations

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity and WFD Annex I and II operations</b>	<b>Limits of specified activity and waste types</b>
AR1	Section 4.1 A(1)(a)(viii) Producing organic chemicals such as - polymers	Production of polyimide polymers	Receipt of raw materials to despatch of finished product. Maximum polymer production capacity 95 tonnes per annum by batch reaction in up to three production vessels, with individual capacities up to 1,500 litres. Abated point source and fugitive emissions are released to air from the facilities exhaust abatement system stack reference A1.
<b>Directly Associated Activity</b>			
AR2	Solvent recovery for re-use in the process	Integrated vacuum distillation process for recovery of used solvents for re-use in the polymer production process in two 1,200 litre capacity distillation units.	From receipt of used solvents into the used solvent holding tanks to return of recovered solvents to solvent feed tanks and transfer of distillation residues to solvent waste storage area. Limited to used solvents arising from the polymer production and associated vessel and line cleaning operations. Limited to up to 10 tonnes of used solvents to be stored at any one time in two bunded tanks located in the building within the within the process area. Capacity of activity limited to 20 tonnes per 24 hours and 2,800 tonnes per 12 months. Abated point source and fugitive emissions released to air from the facilities exhaust abatement system stack reference A1.
AR3	Surface water management	Management of surface waters collected in areas external to the building to ensure only	From collection of waters to release of uncontaminated waters to the area clean water drainage system.

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity and WFD Annex I and II operations</b>	<b>Limits of specified activity and waste types</b>
		uncontaminated water is released to the area clean water drainage system.	
AR4	Waste storage pending off-site disposal	Storage pending collection for disposal or recovery off-site.	Wastes generated from the installation activities, segregated and stored within the main building in defined and contained areas. Storage of solvent waste, including residues from the distillation units, pending collection for off-site disposal/recovery is limited to 3,000 litres at any one time. Storage of aqueous wash water, limited to 3,000 litres at any one time in a dedicated tank. Abated emissions from fugitive sources are released to air from the facilities exhaust abatement system stack reference A1.
AR5	Process cooling and heating	Operation of electrically powered process cooling and heating systems using glycol/water mixture as the cooling system heat transfer fluid and diathermic heating oil as the heat transfer fluid. Interlinked cooling and heating circuits with heat exchangers.	Includes receipt, handling, storage and management of heat transfer fluids within bunded areas.
AR6	Process vacuum delivery	Operation of electrically powered process vacuum systems using closed circuit liquid ring vacuum ring pump with a double mechanical seal or a piston type pump with indirect water cooling.	Includes management of liquid sealant and cooling circuit water. Abated point source and fugitive emissions from the vacuum systems are released to air from the facilities exhaust abatement system stack reference A1.
AR7	Process compressed nitrogen system	Operation of one electrically powered pressure swing absorption (PSA) unit to supply compressed nitrogen for site utilities.	Includes receiver tank, variable speed electrical compressor, PSA system and compressed nitrogen supply lines.

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	<p>The technical standards listed in the response to section 3a – technical standards, Part B3 of the application form and the techniques to meet the standards listed in the supporting BAT assessments (FB3-Q3A EPR4.01 and FB3-Q3A EPR4.02).</p> <p>Raw materials used in production and cleaning as identified in the response to section 3c Table 5 – Types and amounts of raw materials, Part B3 of the application.</p> <p>The air emissions monitoring and control techniques detailed in the responses to section 4 – Monitoring Part B3 of the application form.</p>	Duly Made 05/10/2020
Application	Odour management plan reference OMPv1.0 in response to section 3B, Table 4 – General Requirements, Part B3 of the application form.	13/10/2020
Response to Schedule 5 Notice issued 04/11/2020	<p>Response to question 1 confirming no discharges to foul sewer from permitted activities.</p> <p>Response to question 2 confirming no storage of potentially polluting substances external to the building.</p> <p>Response to questions 4 and 5: detailed site drainage plan (document reference FB2-Q5A (rev1)).</p> <p>Response to question 6 detailing techniques for preventing contamination of surface water run-off from external areas.</p> <p>Response to question 7 detailing techniques for the management of firewater.</p> <p>Response to question 8 detailing technical standards and techniques for management of the solvent recovery activity, including: process control and emissions abatement.</p> <p>The techniques to meet the standards listed in the response to section 3a, technical standards, Part B3 of the application as described in the following documents: the revised BAT assessment summary (FB3-Q3A(Rev1)), solvent recovery process BAT assessment (FB3-Q3A-SGN_5.06).</p>	18/11/2020
Response to Schedule 5 Notice issued 15/12/2020	Response to questions 2 and 3 detailing techniques for operating the solvent recovery activity as a continuous process which is integrated with the polymer production process.	15/12/2020
Response to Schedule 5 Notice issued 19/01/2021	<p>Response to question 1 describing the techniques for generation and use of compressed nitrogen gas.</p> <p>Response to question 2 providing updated site layout plan.</p> <p>Response to question 3 describing techniques to meet the standards listed in the response to section 3a, technical standards, Part B3 of the application: revised Environmental Risk Assessment (ERA) (FB2-Q6- Risk Assessment Duvelco Ltd (Rev 2)).</p>	20/01/2021

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC1	<p>The operator shall submit a report to the Environment Agency for technical assessment and approval.</p> <p>The report shall justify any reduction in the monitoring frequency specified in table S3.1 for total volatile organic carbon (TVOC) in the discharge to</p>	21 months from start of operations

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	<p>air. Justification for any reduction in monitoring frequency for TVOC shall be based on:</p> <ul style="list-style-type: none"> <li>• evidence of the effectiveness of the techniques to minimise and abate emissions to such a level as to present no risk of exceedance of the emission limit value (ELV); and/or,</li> <li>• evidence of the reliability of the performance monitoring associated with the facilities exhaust abatement system to justify reliance on this performance monitoring as a surrogate measure; and,</li> <li>• evidence that the TVOC emissions levels are sufficiently stable.</li> </ul> <p>Any such justification shall be made with reference to the standards for BAT set out in the sector guidance notes EPR 4.01, EPR 4.02, the draft 2019 European BAT reference document (BREF) for Common Waste Gas Management and Treatment Systems in the Chemical Sector and/or any other relevant guidance notified to the operator and confirmed in writing by the Environment Agency.</p> <p>If appropriate, the report shall include proposals for the revised monitoring frequencies for specific parameters.</p> <p>The notification requirements of condition 2.4.2 will be deemed to have been complied with on submission of the report.</p> <p>Once approved in writing and from the date stipulated by the Environment Agency, the operator may adopt the revised monitoring frequencies, subject to such amendments or additions as notified by the Environment Agency.</p>	

<b>Table S1.4A Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
1	<p>By a date agreed with the Environment Agency, prior to the commencement of commissioning of the installation for production purposes, the operator shall provide a written commissioning plan (including timescales for completion and milestone for reporting progress) for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the measures to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved by the Environment Agency.</p> <p>No production shall commence at the installation unless the Environment Agency has given prior written permission under this condition.</p>
2	<p>At least 2 weeks before operation the operator shall submit a report to the Environment Agency for technical assessment and approval.</p> <p>The report shall validate the key assumptions made in the assessment of emissions to air regarding the concentration and rates of emissions to air from emission point reference A1, and confirming the validity of the H1 emissions screening assessment submitted with the application. The report shall be based on monitoring data and other observations collated during commissioning for total volatile organic carbon (TVOC). If</p>

<b>Table S1.4A Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
	<p>appropriate, the report should include an improvement plan, with timescales for deliveries of these improvements.</p> <p>Once approved in writing and from the date stipulated by the Environment Agency, the improvement plan shall be delivered in accordance with the agreed timescales, subject to such amendments or additions as notified by the Environment Agency.</p>



## Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
-	-

## Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in Schedule 7]	Facility exhaust abatement system	TVOC [Note 1]	20 mg/m <sup>3</sup>	Average value of three consecutive measurements of at least 30 minutes each [Note 2]	6 monthly [Note 3]	BS EN 12619 [Note 4]

Note 1: total volatile organic carbon.

Note 2: for any parameter where, due to sampling or analytical limitations, a 30-minute sampling/measurement and/or an average of three consecutive measurements is inappropriate, a more suitable procedure may be employed.

Note 3: unless otherwise agreed in writing with the Environment Agency in line with IC1.

Note 4: in accordance with our online guidance on 'Monitoring stack emissions: techniques and standards for periodic monitoring' 18 December 2019, available from [this link](#) (active July 2020).

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 on site plan in schedule 7 emission to River Trent by way of connection to the Area Clean Surface Water Sewer	Surface water from yard area	Oil and grease	None visible	Instantaneous	Daily	Visual inspection
W2 on site plan in schedule 7 emission to River Trent by way of connection to the Area Clean Surface Water Sewer	Uncontaminated roof and surface water from south side of building	No parameters set	-	-	-	-

<b>Table S3.3 Process monitoring requirements</b>				
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
Facility exhaust abatement system	TVOC	Continuous	Infrared sensors [Note 1]	Monitoring during plant operating hours only
Process scrubber	pH	Continuous	Not applicable	When effective abatement relies on pH of the scrubber liquor.
Condensers on solvent recovery process	Cooling water outlet temperature	Continuous	Not applicable	When in use.
Note 1: or other suitable method agreed in writing with the Environment Agency.				

## Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Emissions to air Parameters as required by condition 3.5.1.	A1	Every 12 months	1 January
Emissions to water Parameters as required by condition 3.5.1	W1	Every 6 months	1 January, 1 July

<b>Table S4.2: Annual production/treatment</b>	
<b>Parameter</b>	<b>Units</b>
Polyimide polymers	tonnes

<b>Table S4.3 Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Water usage	Annually	tonnes
Energy usage	Annually	MWh
Total raw material used	Annually	Tonnes
Total solvent consumption [Note 1]	Annually	tonnes

Note 1: Solvent consumption as defined in Article 57 of the Industrial Emissions Directive.

<b>Table S4.4 Reporting forms</b>		
<b>Media/parameter</b>	<b>Reporting format</b>	<b>Date of form</b>
Air	Form air 1 or other form as agreed in writing by the Environment Agency	01/02/2021
Water	Form water 1 or other form as agreed in writing by the Environment Agency	01/02/2021
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	01/02/2021
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	01/02/2021
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	01/02/2021

# Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

## Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

<b>(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution</b>	
<b>To be notified within 24 hours of detection</b>	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

<b>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

<b>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
Measures taken, or intended to be taken, to stop the emission	

<b>Time periods for notification following detection of a breach of a limit</b>	
<b>Parameter</b>	<b>Notification period</b>

<b>(c) Notification requirements for the breach of permit conditions not related to limits</b>	
<b>To be notified within 24 hours of detection</b>	
Condition breached	
Date, time and duration of breach	
Details of the permit breach i.e. what happened including impacts observed.	
Measures taken, or intended to be taken, to restore permit compliance.	

<b>(d) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified within 24 hours of detection</b>	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

## Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	

Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

\* authorised to sign on behalf of the operator

## Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Hazardous property” has the meaning in Annex III of the Waste Framework Directive.

“Hazardous waste” has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

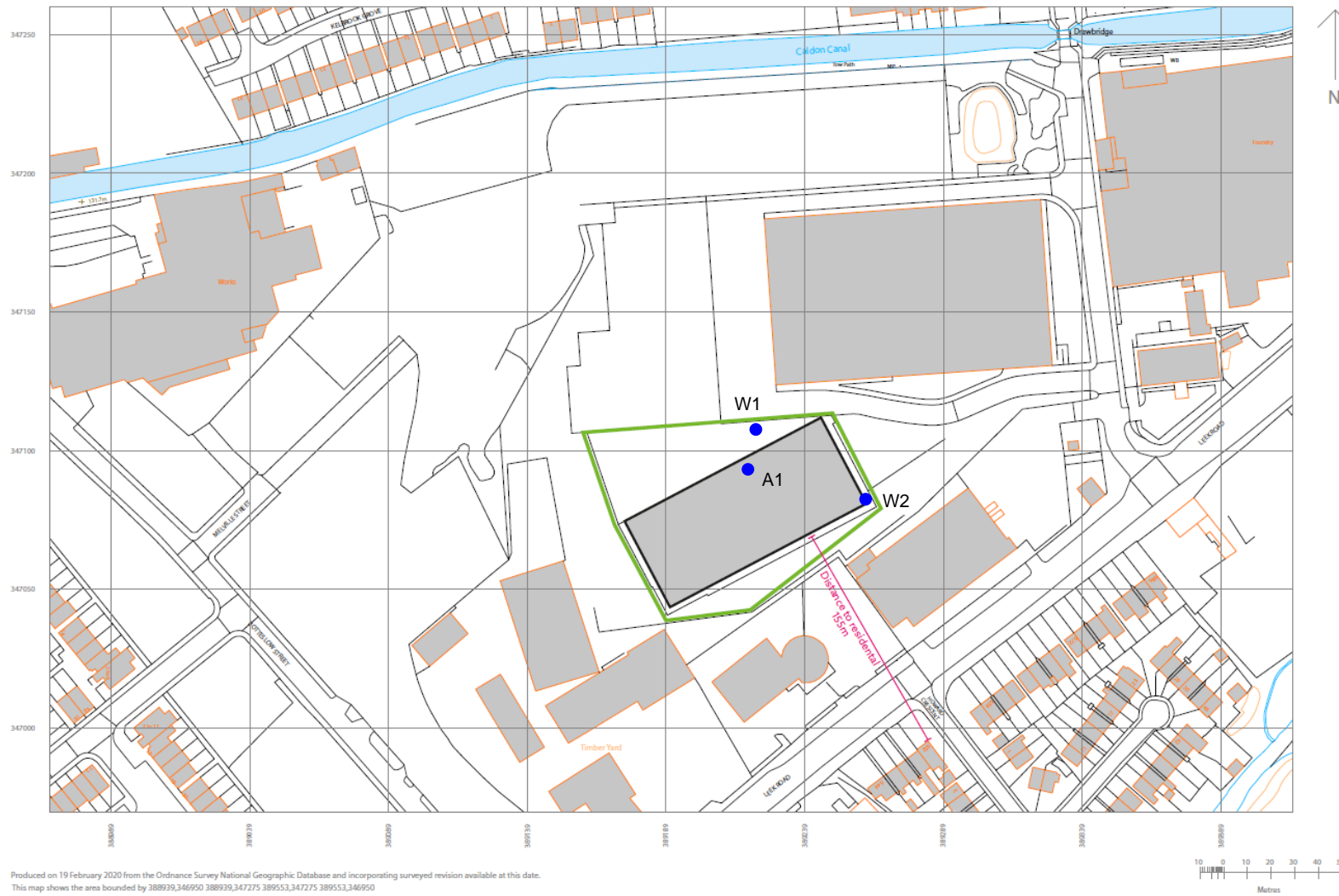
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.



# Schedule 7 – Site plan



©Crown Copyright. All rights reserved. Environment Agency, 100024198, 2021.