

# Notice of variation and consolidation with introductory note

**The Environmental Permitting (England & Wales) Regulations 2016**

---

Ashland Specialties UK Limited

Kidderminster Acrylic Reactor  
Vale Industrial Estate  
Stourport Road  
Kidderminster  
Worcestershire  
DY11 7QU

**Variation application number**

EPR/YP3432CJ/V002

**Permit number**

EPR/YP3432CJ

# Kidderminster Acrylic Reactor

## Permit number EPR/YP3432CJ

### Introductory note

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

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

#### Description of Installation

The main purpose of the installation is the production of up to 9300 tonnes per year of acrylic polymer resins. The batch process makes several different acrylic polymer resins using different acrylic monomers or blends of monomers and additives, and by controlling the reaction conditions such as temperature and duration.

Prior to starting each batch, all vessels are inerted with a nitrogen/air blanket. Nitrogen is either generated from air on site or from vaporisation of supplied liquid nitrogen. Bulk raw materials for each production batch (acetate or acrylate monomers and solvents including ketones, alcohols, alkanes and aromatic compounds) are metered into Weigh Tanks from the 10 bunded storage tanks (capacities between 45000 and 68000 litres). Other raw materials including catalyst/initiators, which are used to start the reaction, are measured into Catalyst Mix Tanks or Weight Tanks from drums and intermediate bulk containers. Solid materials are charged from bags or kegs via openings on the top of each tank. The raw materials are then charged to either reactor. Some catalyst is dewatered by solvent mixing and separation before use.

After the monomer and solvents are charged to a reactor, heat is applied to bring the temperature of the contents to a predetermined point (20 to 50 degC). The conversion of the monomers to polymers is exothermic and takes the temperature of the reactor to approximately 100 degC. Heating (via closed loop heating coils) or cooling (by reflux condenser and cooling coils) is applied to the batch as required to maintain a stable batch temperature. The reflux condenser works by recovering and returning solvent vapours to the reactor. Vapours released through the condenser go to the Thermal Oxidiser. The Reactor remains at approximately atmospheric pressure throughout the batch, each batch reaction lasting typically 8-14 hours. Solvent washings and flushings of reactors and tanks are collected and reused until exhausted to minimise off-site disposal.

The process vessels are connected to a 41.4m<sup>3</sup> steel vessel catch tank. During normal operations and plant maintenance the emergency and process vent lines to the catch tank are closed by bursting discs or valves. In the event of equipment malfunction or loss of reaction control or other failure, the tank is designed to capture the contents of the process vessels such as the reactor or monomer weigh tank. Gases and vapours from the catch tank are inerted with steam and vented at reaction temperature to the atmosphere at a height of 25.6 metres.

Once the desired batch specification is met, the material in the reactor is cooled prior to transfer to one of five blend tanks (two serving line R401 and three serving line R301) where additions of further solvent, cross linkers and minor ingredients are made. The final product is pumped through a series of cartridge filters into shipping container, which can be a tanker, IBC, 205lt drum or, on rare occasions, smaller containers. A drumming exhaust fan is located in the drumming area and exhausts to the Thermal Oxidiser. The cartridge filters are drained to a drum and spent filters are routinely disposed of.

### Releases to atmosphere

The main releases to air are from the Thermal Oxidiser discharge stack, Boiler exhaust stack and Catch Tank relief vent.

The Thermal Oxidiser (TO) is located alongside the process building. Vapour from the process including each of the bulk raw material storage tanks, weigh/mix tanks, reactor reflux condensers and blend tanks are vented to the vertical direct fired Thermal Oxidiser for destruction of organic compounds. Vent gas is fed to the oxidiser through a dedicated duct.

The unit is fired on natural gas and is designed to operate continuously at up to 850degC, with a minimum retention time of 2 seconds. However, as no chlorinated species are present it is more normally operated at 500-650 degC to optimise fuel use. The discharge stack height is 25.6 meters.

The TO uses a natural gas fired burner designed to handle a wide range of flow rates. The burner fires horizontally into the fume flow producing intimate contact between the flame and fume and thereby ensures high Volatile Organic Compound destruction efficiency.

In the event of a TO failure where combustion conditions cannot be maintained this duct is isolated and a signal generated to re-direct vent gas to the catch tank relief vent.

Steam for the process is produced by a 3.5MW thermal input generator fired on natural gas. The exhaust gases from the generator are vented to atmosphere via a 25.6 metre stack.

### Discharges to sewer and controlled waters

There is no process effluent discharge to controlled waters. Site surface run off and rainwater passes through an interceptor and is retained in a 276m<sup>3</sup> sentencing tank. The interceptor has chambers that trap oil or other substances on the surface, whilst heavier material sink to the chamber floor. The unit is fitted with a high level oil alarm.

The water retained in the sentencing tank is assessed prior to final discharge to surface water sewer.

Boiler blowdown and cooling unit blowdown waters are discharged into the foul sewer system.

### Releases to land

Waste from the process is removed from the site by licensed waste contractors. Solid waste mainly comprises non-hazardous packaging and office and commercial waste. Hazardous wastes includes liquids produced during maintenance, off-spec product, equipment wash liquids, empty drums, disposable filters and peroxide packaging.

### Changes relating to this variation

This variation permits the use of the former Phenol reactor (R301) and associated tanks and tanker unloading equipment as an additional acrylic resin production line. It also permits connection of the additional line to the Thermal Oxidiser (although the R301 catch tank will still vent to atmosphere through a separate 17m vent during emergency and maintenance conditions) and amends the installation boundary to include the parts of the site where the additional equipment is located.

The schedules specify the changes made to the permit.

The status log of a 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 BJ6844 (EPR/6844IT/A001)	Received 14/12/00	Original Application
Response to Schedule 4 information notice dated 15/02/01	Received 11/03/01, 26/04/01	

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
	and 17/05/01	
Supplementary information request dated 02/03/01	Received 26/04/01	
Permit BJ6844 determined (EPR/BJ6844IT)	17/07/01	
Variation Application BX3996 (EPR/BJ6844IT/V002)	Received 03/02/04	
Variation BX3996 (EPR/BJ6844IT/V002)	Effective 23/04/04	Installation of a separator in the reflux return line on the acrylic resin reaction vessel.
Variation Application EP3131LL (EPR/BJ6844IT/V003)	Received 12/07/06	
Variation EP3131LL (EPR/BJ6844IT/V003)	Effective 30/10/06	Installation of a new solvent flush collection tank and use of solvent mixing to remove residual water from raw material catalyst
Variation Application UP3236XR (EPR/BJ6844IT/V004)	Received 04/04/08	
Response to requests for additional information dated 30/04/08 and 16/05/08	Responses dated 08/05/08 and 02/07/08	
Variation UP3236XR (EPR/BJ6844IT/V004)	Effective 24/07/08	Extension to installation boundary for larger chemical storage compound
Variation Application EPR/BJ6844IT/V005 (EP3234KH)	Duly Made 04/12/09	
Variation EPR/BJ6844IT/V005	Effective 31/03/10	Reduction of operating temperature of thermal oxidiser and installation of new nitrogen generating unit.
Transfer Application EPR/YP3432CJ/T001	Duly Made 31/10/12	
Transfer determined EPR/YP3432CJ/T001	Effective 13/11/12	Full transfer of permit EPR/BJ6844IT to Ashland Specialties UK Limited
Variation Application EPR/YP3432CJ/V002	Duly Made 01/02/17	
Variation determined EPR/YP3432CJ/V002	Effective 09/05/17	

<b>Other Part A installation permits relating to this installation</b>		
<b>Operator</b>	<b>Permit number</b>	<b>Date of issue</b>
Ashland Specialties UK Limited	EPR/XP3939ZD	21/12/2012

End of introductory note

# Notice of variation and consolidation

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

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies and consolidates

### Permit number

**EPR/YP3432CJ**

### Issued to

**Ashland Specialties UK Limited** ("the operator")

whose registered office is

**Vale Industrial Estate  
Stourport Road  
Kidderminster  
Worcestershire  
DY11 7QU**

company registration number **07816571**

to operate a regulated facility at

**Kidderminster Acrylic Reactor  
Vale Industrial Estate  
Stourport Road  
Kidderminster  
Worcestershire  
DY11 7QU**

to the extent set out in the schedules.

The notice shall take effect from 09/05/2017

<b>Name</b>	<b>Date</b>
<b>Philip Lamb</b>	<b>09/05/2017</b>

Authorised on behalf of the Environment Agency

## **Schedule 1**

All conditions have been varied by the consolidated permit EPR/YP3432CJ.

The following conditions were varied as a result of an Environment Agency initiated variation:

Condition 3.1.5 Periodic monitoring for groundwater and soil to address the requirements of the Industrial Emissions Directive.

All other conditions were varied as a result of the application made by the operator.

## **Schedule 2 – consolidated permit**

Consolidated permit issued as a separate document.

# Permit

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

### Permit number

**EPR/YP3432CJ**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/YP3432CJ/V002 authorising,

**Ashland Specialties UK Limited** (“the operator”),

whose registered office is

**Vale Industrial Estate  
Stourport Road  
Kidderminster  
Worcestershire  
DY11 7QU**

company registration number **07816571**

to operate an installation at

**Kidderminster Acrylic Reactor  
Vale Industrial Estate  
Stourport Road  
Kidderminster  
Worcestershire  
DY11 7QU**

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

Name	Date
Philip Lamb	09/05/2017

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.

## **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 Where a substance is specified in schedule 3 table S3.2 but no limit is set for it, the concentration of such substance in emissions to water from the relevant emission point shall be no greater than the background concentration.
- 3.1.4 Total annual emissions from the emission point(s) set out in schedule 3 tables S3.1 and S3.2 of a substance listed in schedule 3 table S3.3 shall not exceed the relevant limit in table S3.3.
- 3.1.5 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.
- 3.3.2 The operator shall:
  - (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
  - (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

## **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
- 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 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, 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.
- 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.
- 4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:
- (a) a decision by the Secretary of State not to re-certify the agreement;
  - (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
  - (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

## **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 listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
Section 4.1 A(1)(a)(ii) Producing organic chemicals such as organic compounds containing oxygen	Batch production of acrylic resins in reaction vessels and blend tanks (2 lines)	From transfer of raw materials from storage through batch chemical reaction using weigh tanks, reactors and blend tanks to finished products.
<b>Directly Associated Activity</b>		
Storage of raw materials	Receipt of raw materials in the form of bulk deliveries, intermediate bulk containers, drums, bags and kegs for acrylic resin production.	From arrival of raw materials through off-loading areas to bulk, drum and package storage areas including flammable and peroxide chemical storage areas.
Finished product filling and storage	Filling of road tankers, drums and intermediate bulk containers and storage of packaged finished products	From process vessels to container and bulk filling areas. Storage of packaged finished goods in warehouse.
Steam generation	3.5MW thermal input natural gas fired boiler	Installation steam generation
Site surface water handling.	Treatment of discharges to surface water sewer	From collection by site drainage system through oil and solids interceptor to assessment in sentencing tank before pumped discharge to surface water sewer
Solid and liquid waste handling	Storage and removal of waste off-site.	Storage of waste in designated area. Collection, loading and transport off site.
Nitrogen generation	Separation of nitrogen gas from air for inerting of bulk storage and header vessels	Nitrogen gas generators, buffer tank, compressor equipment, oxygen analysers and associated alarms
Nitrogen plant	Inerting of reaction vessels (and associated tanks and bulk storage vessels if necessary)	Delivery of nitrogen gas from installation nitrogen plant to production (and storage) vessels
Firewater storage	Firewater storage tank and sprinkler system	Installation fire suppression system. Surface water drainage system, interceptor and sentencing tank

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application BJ6844 (EPR/BJ6844IJ/A001)	Response to Questions 2.1 (Section 2.1); 2.2 (Section 2.2); 2.3 (Section 2.3); 2.4 (Section 2.4); 2.5 (Section 2.5); 2.6 (Section 2.6); 2.7 (Section 2.7); 2.8 (Section 2.8); 2.9 (Section 2.9); 2.10 (Section 2.10); 2.11 (Section 2.11)	14/12/00
Response to Schedule 4 Part 1 Notice dated 11/03/01	Response to Questions 1 to 3 (Section 2.1); 4 to 8 (Sections 2.2, 2.2.2 and 2.2.3); Questions 9 to 22 (Section 2.3)	11/03/01 11/03/01 11/03/01,26/04/01,

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
	Question 23 (Section 2.5) Questions 24 to 27 (Section 2.7)	17/05/01 11/03/01 11/03/01
Response to Supplementary Information request dated 02/03/01	Questions 1 to 4 in section headed Noise Assessment Questions 1 and 2 in section headed Site Survey Report	26/04/01
Application for variation BX3992 (EPR/BJ6844IJ/V002)	Application for Variation dated 31/01/04 – all parts	03/02/04
Application for variation EP3131LL (EPR/BJ6844IJ/V003)	Application for Variation dated 06/07/06 – all parts	12/07/06
Application for variation EPR/BJ6844IJ/V005 (EP3234KH)	Application for variation dated September 2009 – Sections v1.2, v1.4, v2.3 and Appendix B	28/09/09
Application for variation EPR/YP3432CJ/V002	Application for variation dated 04/10/2016 – Application Forms C2 and C3 Non-Technical Summary Environmental Risk Assessment Best Available Techniques and Operating Techniques	Duly Made 01/02/17

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC 1	The operator shall submit a report on potential environmental improvements to the Permitted Installation. For each of the subject areas identified in Section 2 of the appropriate technical guidance, the report shall assess the costs and benefits of alternative techniques that may provide environmental improvement. This shall include, but not be limited to, those techniques listed in the guidance. The methodologies used should be based on those given in Agency guidance note H1 and should justify, against the Best Available Techniques criteria, where potential improvements are not planned to be implemented. As part of their management system, the Operator shall submit an updated report every 36 months.	17/07/2004 and every 36 months thereafter
IC2	The Operator shall submit a report containing the estimated timetable for implementing an Environmental Management System for the installation and for obtaining accreditation to ISO14001. The Environmental Management System shall have regard to section 2.1 of the IPPC General Sector Guidance S0.01	Complete
IC3	Fugitive emissions shall be reviewed on an annual basis and a summary report on this review shall be sent to the Agency detailing releases and the measures taken to reduce them.	01/01/2002 and annually thereafter
IC4	The Operator shall undertake a programme of liquid effluent monitoring to establish the Flow Rate and concentrations of BOD, Suspended Solids, COD, pH, and Total Hydrocarbons in the liquid being discharged to surface water sewer via release point S1. The programme shall be agreed with the Environment Agency and a report of the findings shall be submitted in writing.	Complete

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC5	Sampling and analysis, using methods agreed with the Agency, shall be conducted to determine the concentration and mass release of substances emitted from the release points A1 (Thermal Oxidiser stack) and A2 (Boiler (Steam Generator) exhaust stack) for those substances as detailed in Table 6.1.2. A report shall be submitted to the Agency	Complete
IC6	A report shall be submitted to the Agency detailing the findings of the commissioning of the reactor and associated process equipment. This report shall include confirmation that the conditions of this permit are being met.	Complete
IC7	<p>The operator shall conduct a review of Volatile Organic Compound (VOC) and Sulphur Dioxide emissions from Emission Points A1 and A2. A report of the review must be submitted in writing to the Environment agency</p> <p>Unless agreed in advance with the Environment Agency the review should include, but not be limited to,</p> <ul style="list-style-type: none"> <li>• Use of monitoring periods during reactions and monitoring methods as agreed with the Environment Agency.</li> <li>• Recent concentration monitoring results, details of calibrations and correction of results to standard conditions.</li> <li>• Estimates of mass emission for individual reaction profiles and aggregated annual releases.</li> <li>• Environmental Impact Modelling if appropriate.</li> <li>• As far as possible, speciation of VOCs and Classification under the The Categorisation of Volatile Organic Compounds HMIP (1996) guidance.</li> </ul>	31/10/17



## 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 <sup>Note1</sup>
A1 [Point A1 on Drawing No P99111-01063]	Thermal Oxidiser	Oxides of Nitrogen (expressed as NO <sub>2</sub> )	350 mg/m <sup>3</sup>	Hourly average	Bi-annually	BS EN 14792
		Carbon Monoxide	100 mg/m <sup>3</sup>	Hourly average	Bi-annually	BS EN 15058
		Sulphur Dioxide	Note 2	Hourly average	Bi-annually	BS EN 14791
		Volatile Organic Compounds (expressed as carbon)	Note 2	Hourly average	Bi-annually	BS EN 14181
A2 [Point A2 on Drawing No P99111-01063]	Boiler (steam generator)	Oxides of Nitrogen (expressed as NO <sub>2</sub> )	150 mg/m <sup>3</sup>	Hourly average	Annually	BS EN 14792
		Carbon Monoxide	100 mg/m <sup>3</sup>	Hourly average	Annually	BS EN 15058
		Sulphur Dioxide	1 mg/m <sup>3</sup>	Hourly average	Annually	BS EN 14791
		Volatile Organic Compounds (expressed as carbon)	Note 2	Hourly average	Annually	BS EN 14181
A3 [Point EM01 on Drawing No P99111-01063]	Catch tank for R401 relief vent	No parameters	-	-	-	-
A4 [Point A2 on Phenol reactor drawing AP6]	Catch tank for R301 relief vent	No parameters	-	-	-	-
A5	Product packaging vent	No parameters	-	-	-	-

Note 1: Or otherwise as agreed in writing with the Environment Agency

Note 2: Limit to be agreed in writing with the Environment Agency based on the response to Improvement Condition IC7.

Certification to the MCERTS performance standards indicates compliance with BS EN 15267-3

<b>Table S3.2 Point source emissions to sewer, effluent treatment plant or other transfers off-site–emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. Unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method Note1</b>
S1 [to Severn Trent surface water sewer discharging to the Staffordshire and Worcestershire Canal]	Site Drainage from sentencing tank	Biochemical Oxygen Demand (BOD)	20 mg/l	Spot sample	Quarterly	BS EN 1899-1
		Chemicals Oxygen Demand (COD)	50 mg/l	Spot sample	Quarterly	BS ISO 15705
		Suspended Solids	30 mg/l	Spot sample	Quarterly	SCA blue book 105 ISBN 011751957X
		Total Hydrocarbons	5 mg/l	Spot sample	Quarterly	SCA blue book 157 ISBN 0117529796
		pH (maximum)	9	Spot sample	Quarterly	BS ISO 10523
		pH (minimum)	6	Spot sample	Quarterly	BS ISO 10523
		Visible hydrocarbons – grease and oil	None present	Visual inspection	Quarterly	Visual inspection
S2 [to Severn Trent foul sewer]	Boiler blowdown and cooling water blowdown	No parameters	-	-	-	-

Note 1: Or otherwise as agreed in writing with the Environment Agency

<b>Table S3.3 Annual limits</b>		
<b>Substance</b>	<b>Medium</b>	<b>Limit (including unit)</b>
Sulphur dioxide	Air	No annual limit
Oxides of nitrogen (as NO <sub>2</sub> )	Air	No annual limit
Carbon Monoxide	Air	No annual limit
Volatile Organic Compounds	Air	No annual limit
Biochemical Oxygen Demand (BOD)	Sewer	No annual limit
Chemicals Oxygen Demand (COD)	Sewer	No annual limit
Suspended Solids	Sewer	No annual limit
Total Hydrocarbons	Sewer	No annual limit

## Schedule 4 – Reporting

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

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A1	Every 6 months	17/07/2001
Emissions to air Parameters as required by condition 3.5.1.	A2	Every 12 months	17/07/2001
Emissions to sewer Parameters as required by condition 3.5.1	S1	Every 3 months	17/07/2001

Parameter	Units
Acrylic Polymer Resin	tonnes

Parameter	Frequency of assessment	Units
Energy usage	Annually	MWh

Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Sewer	Form sewer 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY

# 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	
Measures taken, or intended to be	

<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>	
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 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.

“annually” means once every year.

“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.

“background concentration” means such concentration of that substance as is present in, for the emissions to sewer, the surface water quality up-gradient of the surface water sewer discharge or sewage treatment works discharge.

“bi-annual” means twice per year with at least five months between tests;

“BOD” means biochemical oxygen demand, determined in the presence of 055 mg/l of allyl thiourea for five days at 20 °C.

“COD” means chemical oxygen demand.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 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 or background concentration 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.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

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

“Monitoring” includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.

“Permitted Installation” means the activities and the limits to those activities described in Table S1.1 to this permit.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

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



END OF PERMIT

**Permit Number: EPR/YP3432CJ**

**Operator: Ashland Specialties UK Limited**

**Facility: Kidderminster Acrylic Reactor**

**Form Number: Air1 01/04/17**

**Reporting of emissions to air for the period from ..... to .....**

<b>Emission Point</b>	<b>Substance / Parameter</b>	<b>Emission Limit Value</b>	<b>Reference Period</b>	<b>Result <sup>[1]</sup></b>	<b>Test Method <sup>[2]</sup></b>	<b>Sample Date and Times <sup>[3]</sup></b>	<b>Uncertainty <sup>[4]</sup></b>
A1	Oxides of Nitrogen (expressed as NO <sub>2</sub> )	350 mg/m <sup>3</sup>					
A1	Carbon Monoxide	100 mg/m <sup>3</sup>					
A1	Sulphur Dioxide	[5] -					
A1	Volatile Organic Compounds (expressed as carbon)	[5] -					
A2	Oxides of Nitrogen (expressed as NO <sub>2</sub> )	150 mg/m <sup>3</sup>					
A2	Carbon Monoxide	100 mg/m <sup>3</sup>					
A2	Sulphur Dioxide	1 mg/m <sup>3</sup>					
A2	Volatile Organic Compounds (expressed as carbon)	[5] -					

1. The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
2. Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.

3. For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
4. The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.
5. Limit to be agreed in writing with the Environment Agency based on the response to Improvement Condition IC7.

Signed .....

Date.....

(Authorised to sign as representative of Operator)

**Permit Number: EPR/YP3432CJ**

**Operator: Ashland Specialties UK Limited**

**Facility: Kidderminster Acrylic Reactor**

**Form Number: Sewer1 01/04/17**

**Reporting of emissions to sewer for the period from ..... to .....**

<b>Emission Point</b>	<b>Substance / Parameter</b>	<b>Emission Limit Value</b>	<b>Reference Period</b>	<b>Result <sup>[1]</sup></b>	<b>Test Method <sup>[2]</sup></b>	<b>Sample Date and Times <sup>[3]</sup></b>	<b>Uncertainty <sup>[4]</sup></b>
S1	Biochemical Oxygen Demand (BOD)	20 mg/l					
S1	Chemicals Oxygen Demand (COD)	50 mg/l					
S1	Suspended Solids	30 mg/l					
S1	Total Hydrocarbons	5 mg/l					
S1	pH	6 - 9					

1. The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
2. Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
3. For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

4. The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed .....

Date.....

(Authorised to sign as representative of Operator)

**Permit Number:   EPR/YP3432CJ**

**Operator:           Ashland Specialties UK Limited**

**Facility:           Kidderminster Acrylic Reactor**

**Form Number:   Energy1 01/04/17**

**Reporting of Energy Usage for the year .....**

<b>Energy Source</b>	<b>Energy Usage</b>		<b>Specific Usage (MWh/unit output)</b>
	<b>Unit</b>	<b>Quantity</b>	
Delivered Electricity	MWh		
Primary electricity (delivered x 2.4)	MWh		
Delivered Gas	MWh		
Primary Carbon Dioxide (primary electricity x 0.166)	Tonne		

Operator's comments:

Signed .....

Date.....

(Authorised to sign as representative of Operator)