



# Permit with introductory note

Pollution Prevention and Control Regulations 2000

Ruabon Chemical Works

Flexsys Rubber Chemicals Ltd  
Ruabon Works  
Cefn Mawr  
Wrexham  
LL14 3SL

Permit number

BQ4173

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## Introductory note

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

The following Permit is issued under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No.1973), as amended, ("the PPC Regulations") to operate part of an installation carrying out activities covered by the description in Sections 4.1 A(1) (a)(iii) and 4.1 A(1) (a)(iv) in Part 1 to Schedule 1 of the PPC Regulations, to the extent authorised by the Permit:

Section 4.1 A(1) (a)(iii) – Producing organic chemicals such as organic compounds containing sulphur, such as sulphides, mercaptans, sulphonic acids, sulphonates, sulphates and sulphones and sulphur heterocyclics

Section 4.1 A(1) (a)(iv) – Producing organic chemicals such as organic compounds containing nitrogen, such as amines, amides, nitrous-, nitro- or azo- compounds, nitrates, nitriles, nitrogen heterocyclics, cyanates, isocyanates, di-isocyanates and di-isocyanate polymers

Aspects of the operation of the installation which are not regulated by conditions of the Permit are subject to the condition implied by Regulation 12(10) of the PPC Regulations, i.e. the Operator shall use the best available techniques for preventing or, where that is not practicable, reducing emissions from the installation.

Techniques include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

In some sections of the Permit conditions require the Operator to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent and where that is not practicable to reduce emissions. The conditions do not explain what is BAT. In determining BAT, the Operator should pay particular attention to relevant sections of the IPPC Sector guidance, appropriate Horizontal guidance (H1 to H4) and other relevant guidance.

A non-technical description of the installation is given in the Application, but the main features of the installation are as follows:

The production activities of the Ruabon Chemical Works are for the manufacture of TMQ (1,2-dihydro-2,2,4-trimethylquinoline, DPG (Diphenylguanidine), PVI [N-(cyclohexylthio)phthalimide], pHBA (para-hydroxybenzoic acid) and colloidal silica. This permit relates to TMQ, DPG and PVI only. The works comprises three separate areas: manufacturing area, biological waste water treatment plant and the former product warehousing (this last item does not form part of the installation).

TMQ is produced from the batch reaction of acetone and aniline. TMQ polymer is separated by vacuum distillation, then pastillated to give the product, an antioxidant used in the manufacture of rubber articles.

The DPG process involves the use of chlorine and sodium cyanide solution in a continuous process to produce an intermediate, cyanogen chloride, which is reacted batch-wise with aniline. The precipitated, dried product, as either powder or granules, is used as an accelerator in the manufacture of rubber articles.

PVI is produced by the multistage batch reaction of potassium hydroxide, n-butanol, ammonia, phthalic anhydride, chlorine and cyclohexylmercaptan using white spirit as solvent. The centrifuged, dried powder is used as a pre-vulcanisation inhibitor.

The manufacturing processes are supported by: steam generation from a CHP unit and package boilers, electricity generation from the CHP unit, compressed air and nitrogen generation, process water treatment unit, waste water treatment plant (for treatment of liquid effluent prior to discharge to the River Dee) and a waste storage area. These site support activities are all operated by Flexsys.

All three manufacturing processes and support services operations use computer based DCS (Distributed Computer Systems).

A number of abatement systems are provided. Hence typically for volatile organic compounds (VOCs) there are condensers followed by backup water packed scrubbers or vacuum ejector systems followed by water spray condensers. For potentially irritant or toxic gas vent emissions, packed column scrubbers using water/caustic soda to absorb the gas are used. Typically particulate emissions are controlled by fabric filter dust collectors, the exception being the DPG granules drier-system where water scrubber and cyclones are used to handle higher flows and allow the re-cycle of particulates back into the process. Back venting between vessels/road tankers is used where appropriate and activated carbon filters provided for point source emissions of odorous materials.

All emissions to surface water (River Dee) are via the site's waste water treatment plant (WWTP) for biological treatment (including direct injection of oxygen) prior to discharge. All the individual site processes (including Clariant's and DuPont Air Product's) discharge their effluent to the WWTP following in-plant treatment. The only discharge to sewer is domestic waste.

With few exceptions site storage tanks are bunded, tanker offloading areas are on made ground with spillage collection sumps and manufacturing process areas are on made ground with spillage containment gullies/sumps, this is addressed through the Improvement Programme.

The close proximity of local residents to the site boundary makes control of odour and noise key issues in maintaining community acceptance of site operations.

The Flexsys Environmental Management System is an integrated part of the Site Quality, Environment, Safety and Health Management System which is accredited to ISO 9002 and ISO 14001. The Flexsys operations are also defined as a COMAH top-tier site.

Energy efficiency measures are implemented and Flexsys holds a Climate Change Levy Agreement. The CHP operation generates the site's electrical supply and allows some export to the national grid.

Note that the Permit requires the submission of certain information to the Agency (see Sections 4 and 5). In addition, the Agency has the power to seek further information at any time under regulation 28 to the PPC Regulations provided that it acts reasonably.

**Other PPC Permits relating to this installation**

Permit holder	Permit Number	Date of Issue
Clariant UK Ltd	BV1950	13/04/04
DuPont Air Products NanoMaterials Ltd	BV2689	13/04/04

**Superseded Licences/Authorisations/Consents relating to this installation**

Holder	Reference Number	Date of Issue
Flexsys Rubber Chemicals Ltd	AL7618 (IPC)	01/06/94
Flexsys Rubber Chemicals Ltd	AK5784 (IPC)	23/02/94
Flexsys Rubber Chemicals Ltd	AN9000 (IPC)	28/11/94
Flexsys Rubber Chemicals Ltd	AK5750 (IPC)	23/02/94
Flexsys Rubber Chemicals Ltd	AK5768 (IPC)	21/02/94

Other activities may take place on the site of this installation which are not regulated under this Permit or any other PPC Permit referred to in the Table above. These activities include Hertel Services Ltd an independent engineering company.

## **Public Registers**

Considerable information relating to Permits including the Application is available on public registers in accordance with the requirements of the PPC Regulations. Certain information may be withheld from public registers where it is commercially confidential or contrary to national security.

## **Variations to the Permit**

This Permit may be varied in the future (by the Agency serving a Variation Notice on the Operator). If the Operator itself wants any of the Conditions of the Permit to be changed, it must submit a formal Application. The Status Log within the Introductory Note to any such Variation Notice will include summary details of this Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

## **Surrender of the Permit**

Before this Permit can be wholly or partially surrendered, an Application to surrender the Permit has to be made by the Operator. For the application to be successful, the Operator must be able to demonstrate to the Agency that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

## **Transfer of the Permit or part of the Permit**

Before the Permit can be wholly or partially transferred to another person, an Application to transfer the Permit has to be made jointly by the existing and proposed holders. A transfer will be allowed unless the Agency considers that the proposed holder will not be the person who will have control over the operation of the installation or will not comply with the conditions of the transferred Permit. If, however, the Permit authorises the carrying out of a specified waste management activity, the transfer will only be allowed if the proposed holder is also considered to be "a fit and proper person" as required by the PPC Regulations.

## **Talking to us**

Please quote the Permit Number if you contact the Agency about this Permit.

To give a Notification under Condition 5.1.1, the Operator should use the Incident Hotline telephone number (0800 80 70 60) or any other number notified in writing to the Operator by the Agency for that purpose.

## Status Log

Detail	Date	Comment
Application BQ4173	Received 14/08/03	
Additional information	Received Nov.03-Jan.04	Further Site Report information
Additional information	Received 16/12/03	Releases to air
Additional information	Received 11/12/03, 09/01/04	Hertel Services lease & location
Additional information	Received 30/01/04	Units and minor operational changes
Additional information	Received 05/03/04	Impact of released copper from Syton ion-exchange unit
Additional information	Received 05/03/04	Site plan
Additional information	Received 23/03/04, 01/04/04	Cadmium and Mercury in effluent
Permit determined	13/04/04	

**End of Introductory Note.**

**Permit**

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Regulations 2000



**ENVIRONMENT  
AGENCY**

## Permit

Permit number  
**BQ4173**

The Environment Agency (the Agency) in exercise of its powers under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations (SI 2000 No 1973), hereby authorises

**Flexsys Rubber Chemicals Ltd** ("the Operator"),

Of/ whose Registered Office (or principal place of business) is

**Ruabon Works  
Cefn Mawr  
Wrexham  
LL14 3SL**

Company registration number 1277553

to operate part of an Installation at

**Ruabon Chemical Works  
Cefn Mawr  
Wrexham  
LL14 3SL**

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

Signed

Date

	<i>13<sup>th</sup> April 2004.</i>
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D Powell

Authorised to sign on behalf of the Agency

# Conditions

## 1 General

### 1.1 Permitted Activities

1.1.1 The Operator is authorised to carry out the activities and the associated activities specified in Table 1.1.1.

**Table 1.1.1**

<b>Activity listed in Schedule 1 of the PPC Regulations / Associated Activity</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
Section 4.1 A(1) (a)(iii): Producing organic chemicals such as organic compounds containing sulphur, such as sulphides, mercaptans, sulphonis acids, sulphonates, sulphates and sulphones and sulphur heterocycles	Manufacture of chemicals for the rubber industry	From receipt of raw materials to dispatch of products
Section 4.1 A(1) (a)(iv): Producing organic chemicals such as organic compounds containing nitrogen, such as amines, amides, nitrous-, nitro- or azo- compounds, nitrates, nitriles, nitrogen heterocyclics, cyanates, isocyanates, di-isocyanates and di-isocyanate polymers	Manufacture of chemicals for the rubber industry	From receipt of raw materials to dispatch of products
Associated Activity	Waste water treatment	Treatment of liquid effluent prior to discharge to controlled water (River Dee). Includes rain water, abstracted water and effluent from the two other operators on site
Associated Activity	Process water treatment	Provision of process and cooling water from extracted river water
Associated Activity	Power house	Steam generation from a CHP unit and package boilers (individual capacities <20MW, aggregated <50MW), electricity generation from the CHP unit
Associated Activity	Compressed air generation	Provision of compressed air for the site's manufacturing units and in-house nitrogen generation
Associated Activity	Nitrogen generation	Nitrogen generation from a pressure-swing adsorption unit, backed-up by liquid nitrogen in the event of the nitrogen generator failing
Associated Activity	Waste storage	Provision of designated storage areas and segregation for generated waste

- 1.1.2 Where waste on site is subjected to activities that are exempt from control under the Waste Management Licensing Regulations 1994 then the wastes controlled under condition 1.1.1, above, shall be clearly identified and kept separate from such exempt waste activities and a record shall be kept of where such exempt activities are conducted.

## 1.2 Site

- 1.2.1 The Installation is the area shown edged in red on the IPPC Permit Areas drawing (Drawing No. 88C01043) at Schedule 5 and is within the area edged in dark blue which represents the extent of the Site. The extent of the Installation covered by this Permit and the extent of the Installation covered by the Permits of other operators are identified on the drawing (Clariant by black hatching, DuPont Air Products NanoMaterials by green cross-hatching and Hertel by pale blue hatching, the unshaded areas are the Flexsys Rubber Chemicals Ltd permitted areas). Note Hertel operations are not covered by a permit. The activities authorised under condition 1.1.1 shall not extend beyond the areas indicated on Drawing No. 88C01043.

## 1.3 Overarching Management Condition

- 1.3.1 Without prejudice to the other conditions of this Permit, the Operator shall implement and maintain a management system, organisational structure and allocate resources that are sufficient to achieve compliance with the limits and conditions of this Permit.

## 1.4 Improvement Programme

- 1.4.1 The Operator shall complete the improvements specified in Table 1.4.1 by the date specified in that table, and shall send written notification of the date of completion of each requirement to the Agency within 14 days of the completion of each such requirement.

**Table 1.4.1: Improvement programme**

Reference	Requirement	Date
1	The operator shall undertake work to isolate water, when not in use, to the following PVI plant items: Luwa Ejector Spray, Butoxide Spray Condenser, No.1 Imide Spray Condenser, No.2 Imide Spray Condenser, No.1 Chlorinator Spray Condenser, No.2 Chlorinator Spray Condenser, Ammonia Scrubber.	30/06/04
2	The operator shall automate the blow down system for the PVI Cooling Tower.	31/12/04
3	The operator shall automate the water isolation to TMQ No.2 Vacuum Still third stage ejector.	30/06/04
4	The operator shall implement lagging improvement actions defined as priority in the site's Energy Improvement Plan.	31/12/04
5	The operator shall install a SG meter on the underflow of TMQ North to South Effluent Tank to remove the need for manual sampling.	30/06/04
6	The operator shall install spring return valves on the TMQ Neutraliser and Washer sample lines.	30/06/04
7	The operator shall provide a bund for the Fire Water Pump diesel tank.	31/12/04
8	The operator shall provide a spill catchment for Fire Water diesel offloading.	31/12/04
9	The operator shall provide leak containment for the Kerosene Distribution Pumps.	31/12/04
10	The operator shall remove the Patterson Diesel storage.	31/12/04
11	The operator shall undertake final commissioning of the Process Water Treatment Plant (PWTP) project to allow replacement of potable water for process duties.	31/12/04
12	The operator shall provide a concrete spill catchment area to the TMQ Effluent hold tanks.	30/06/05
13	The operator shall provide an alternative pump method for emptying the Strong Effluent emergency storage bund.	31/12/05
14	The operator shall provide an alternative pump method for emptying the Waste Water Treatment Plant (WWTP) Chemical Storage bund.	31/12/05
15	The operator shall establish periodic checking of steam traps by Utilities Operators as defined in the site's Energy Improvement Plan. The Agency shall be advised on establishment and implementation of the checking system and sent a copy of the list and procedure.	30/06/04
16	The operator shall develop a list of steam traps to aid checking by Plant Operators as defined in the site's Energy Improvement Plan. The Agency shall be advised on completion and use of the list and sent a copy of the list and procedure.	30/06/04
17	The operator shall re-locate the TMQ Waste Storage Area L4 from north-side to south-side of Building502 for improved spill protection.	30/06/04
18	The operator shall agree M CERT procedures for Air Monitoring with the Agency and implement the	30/06/04

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	procedures. Following agreement of the procedures the Agency shall be advised on their implementation.	
19	The operator shall complete a plant closure plan. The Agency shall be sent a copy of the plan for agreement.	31/12/04
20	The operator shall evaluate procedures/method of steaming the PVI Residue line in order to reduce odour. The Agency shall be sent a report of the evaluation and a copy of any new/revised procedure/method.	31/12/04
21	The operator shall implement a Six Sigma Analysis of PVI batch weight variability to identify yield improvement. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	30/06/04
22	The operator shall evaluate broadband noise reversing alarms for fork lift trucks. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	30/06/04
23	The operator shall complete further analysis of process releases to weak and strong effluent to fully define the composition of the effluents. A report shall be submitted to the Agency.	30/06/04
24	The operator shall complete an optimisation study of TMQ Vacuum Still operations for improved gas usage. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/04
25	The operator shall complete an optimisation study of PVI Butoxide Reactor operation for improved steam usage. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/04
26	The operator shall complete an evaluation study of re-cycling seal water for DPG Pannevis Vacuum pumps. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/04
27	The operator shall complete an evaluation of condensate recovery from the DPG Fluid Bed Dryer. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/04
28	The operator shall implement a monitoring programme of noise levels from TMQ No.2 Vacuum Still to identify needs for further improvements in noise reduction. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/04
29	The operator shall undertake a study of noise survey work already completed for review with the Agency to decide on the need and extent for additional noise surveying in accordance with BS 4142:1997 and BS 7445-1:2003. The study shall be submitted to the Agency.	30/06/04
30	The operator shall complete a BPEO assessment of waste disposal routes. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/04
31	The operator shall complete an assessment of secondary containment provided by road kerbing and the road sump at the WWTP to give protection in the event of Kessner	30/09/04

	Unit, old clarifiers, North Storage Tank, Tanks 1500/1510 and PWTP tank failures. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	
32	The operator shall review the underground weak effluent system to identify opportunities for rationalisation of the system, to enable completion of a Risk Assessment of the drains system with regard to ground water contamination, to provide an assessment of the system integrity and to establish future maintenance strategy. A report shall be submitted to the Agency that includes a summary of the assessments and strategy and any implementation plans.	30/09/04
33	The operator shall investigate sources of aniline emissions to air to identify potential improvements for reduction in off-site impact. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/04
34	The operator shall undertake a study of 11H Polymer Scrubber water make up to improve scrubbing efficiency and reduce organic phase losses to effluent. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/04
35	The operator shall undertake a study of the West Polymer Scrubber extraction pipe-work to improve extraction efficiency for Pastillator fugitive emissions. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	30/06/04
36	The operator shall complete an investigation of white spirit losses to effluent from the PVI process. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	30/06/04
37	The operator shall complete an evaluation of condensate recovery from the DPG Powder TV Dryer. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/05
38	The operator shall undertake a Waste Minimisation Audit. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/05
39	The operator shall undertake a Risk Assessment of PVI Residue Storage bunding requirements. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	31/12/05
40	The operator shall undertake an assessment of future use for a redundant strong effluent tank (North Tank). A report shall be submitted to the Agency that includes a plan to implement any changes of the tank use.	31/08/04
41	The operator shall review performance of the TMQ Pre-Reactor transfer pump and evaluate the use of a magnetic drive pump. A report shall be submitted to the Agency that includes a plan to implement any change of the pump.	31/12/05
42	The operator shall complete a lighting survey to identify potential energy improvements as defined in the site's	31/12/06

	Energy Improvement Plan. A report shall be submitted to the Agency that includes a plan to implement any improvements identified.	
43	The operator shall undertake an assessment of the future use of WWTP Tanks 1500 and 1510 with regard to their construction, integrity, acceptable storage use and need for secondary containment. A report shall be submitted to the Agency that includes a plan for the future use and appropriate containment of the tanks.	30/06/06
44	The operator shall evaluate the benefits of replacing TMQ No.2 Vacuum Still Spray Condenser with a shell and tube exchanger following full commissioning/optimisation of the new PWTP. A report shall be submitted to the Agency that includes a plan to implement any change of the condenser.	31/12/06
45	The operator shall complete an investigation of H <sub>2</sub> S emissions from the PVI plant. A report shall be produced and sent to the Agency for review and to agree emission limits and abatement systems if appropriate.	31/03/05
46	The operator shall establish the actual fate (concentration and distribution between discharged effluent and sludge for land-spreading arising from the Installation's Waste Water Treatment Plant) of Copper, Zinc and other trace metals identified as significant, that are released from the DuPont Air Products NanoMaterials Ltd's ion-exchange unit. A report shall be sent to the Agency.	31/12/04
47	The operator shall establish the concentration of Cadmium and Mercury in the effluent discharged from the Installation's Waste Water Treatment Plant. Monitoring results shall be assessed after one year's data has been accumulated. A report shall be sent to the Agency.	30/06/05
48	The operator shall establish the sources, quantities and mercury concentration of mercury - containing effluents sent to the Waste Water Treatment Plant. A report shall be sent to the Agency.	30/06/05

- 1.4.2 Where the Operator fails to comply with any requirement by the date specified in Table 1.4.1 the Operator shall send written notification of such failure to the Agency within 14 days of such date.

## 1.5 Minor Operational Changes

- 1.5.1 The Operator shall seek the Agency's written agreement to any minor operational changes under condition 2.1.1 of this Permit by sending to the Agency: written notice of the details of the proposed change including an assessment of its possible effects (including waste production) on risks to the environment from the Permitted Installation; any relevant supporting assessments and drawings; and the proposed implementation date.

- 1.5.2 Any such change shall not be implemented until agreed in writing by the Agency. As from the agreed implementation date, the Operator shall operate the Permitted Installation in accordance with that change, and relevant provisions in the Application shall be deemed to be amended.
- 1.5.3 When the qualification "unless otherwise agreed in writing" is used elsewhere in this Permit, the Operator shall seek such agreement by sending to the Agency written notice of the details of the proposed method(s) or techniques.
- 1.5.4 Any such method(s) or techniques shall not be implemented until agreed in writing by the Agency. As from the agreed implementation date, the Operator shall operate the Permitted Installation using that method or technique, and relevant provisions in the Application shall be deemed to be amended.

## **1.6 Pre-Operational Conditions**

- 1.6.1 There are no pre-operational conditions

## **1.7 Off-site Conditions**

- 1.7.1 Off-site environmental monitoring conditions are included in condition 2.10.2 and described in Table 2.10.1

## 2 Operating conditions

### 2.1 In-Process Controls

- 2.1.1 The Permitted Installation shall, subject to the conditions of this Permit, be operated using the techniques and in the manner described in the documentation specified in Table 2.1.1, or as otherwise agreed in writing by the Agency in accordance with conditions 1.5.1 and 1.5.2 of this Permit.

**Table 2.1.1: Operating techniques**

Description	Parts	Date Received
Application	The response to questions 2.1 and 2.2 given in pages 6 -98 of the application	14/08/03

- 2.1.2 No conditions apply.

### 2.2 Emissions

#### 2.2.1 Emissions to Air, (including heat, but excluding Odour, Noise or Vibration) from Specified Points

- 2.2.1.1 This Part 2.2.1 of this Permit shall not apply to releases of odour, noise or vibration.
- 2.2.1.2 Emissions to air from the emission points in Table 2.2.1 shall only arise from the sources specified in that Table.

**Table 2.2.1 : Emission points to air**

<b>Emission point reference or description</b>	<b>Source</b>	<b>Location of emission point</b>
<b>TMQ PROCESS<sup>1</sup></b>		
A20/1	Washer Vent Tank Scrubber	Building 502
A20/2	Acetone Feed Tank Scrubber	Building 502
A20/3	Acetone Vent Tank Scrubber	Building 502
A20/4	Azeotrope Condenser Scrubber	Building 502
A20/5	Acetone Scrubber Tank	Building 502
A20/6	Separator Feed Tank	Building 502
A20/7	Recovered Aniline Storage Tank	Building 502
A20/8	Hi-boiler Storage	Building 502
A20/9	No.1 Vacuum Still Ejector Seal Pot	Building 502
A20/10	No.1 Vacuum Still Ejector Scrubber	Building 502
A20/11	11H Polymer Storage	Building 502
A20/12	Single Stage Vacuum Ejector	Building 502
A20/13	11H Polymer Storage Scrubber	Building 502
A20/14	Washer Sample Point Fume Extraction	Building 502
A20/15	No.1 Vacuum Still Flue	Building 502
A20/16	Main Acetone Storage	Road 1
A20/17	No.2 Vacuum Still Ejector Seal Pot	Adjacent Building 423
A20/18	No.2 Vacuum Still Flue	Adjacent Building 423
A20/19	No.2 Vacuum Still Ejector Exhaust	Adjacent Building 423
A20/20	Santotherm Expansion Tank	Adjacent Building 423 North Side
A20/21	West Polymer Storage	Building 423
A20/22	West Polymer Storage Scrubber	Building 423
A20/23	Pastillator Dust Collector Exhaust	Building 423
A20/24	HCl Storage Scrubber	Road 1
A20/25	North Effluent Settling Tank	Road 5
A20/27	Main Aniline Storage	Road 1
A20/28	No.1 Vacuum Still Sample Point Fume Extraction	Building 502
<b>CAUSTIC STORAGE<sup>1</sup></b>		
A65/1	47% Caustic Storage Tank	Road 3
A65/2	25% Caustic Storage Tank	Road 3
<b>DPG PROCESS<sup>2</sup></b>		
A15/1	South Cyanide Storage	Area 596
A15/2	North Cyanide Storage	Area 596
A15/3	Aniline Storage	Area 579
A15/7	Precipitator	Building 521
A15/9	Vac. Pump No.1 for Vac. Belt Filter	Building 521
A15/10	Vac. Pump No.2 for Vac. Belt Filter	Building 521
A15/11	Recycle Slurry Tank	Building 521
A15/12	Dryer & Plant Scrubbers Discharge Stack	Building 521
A15/14	Caustic Scrubber Vac. Ejector Vent	Building 520
A15/15	Effluent Holding Tank & Venturi Scrubber Vent	Adjacent Building 521

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A15/17	Absorber Train A Nitrogen Conservation Vent	Building 520
A15/21	Filtrate Tank	Building 520
A15/47	Caustic Scrubber Atmospheric Vent	Building 520
A15/48	HCl Scrubber for In-Plant Storage	Building 520
A15/49	CNCI Effluent Ammonia Water Scrubber	Building 520
A15/50	CNCI Building Scrubber	Building 520
A15/51	Absorber Train B Nitrogen Conservation Vent	Building 520
A15/52	CNCI Effluent Neutraliser Caustic Head Tank	Building 520
A15/53	DPG HCl Scrubber	Building 520
A19/54	Offloading Caustic Scrubber	Area 597
A19/55	Spent Caustic Storage Tank	Area 597
A19/56	Building Scrubber	Area 599
A19/57	Building Scrubber Caustic Hold Tank	Area 599
A29/1	Precipitator & Slurry Tank	Building 509
A29/3	Drier Scrubber	Building 509
A29/4	Mixed Feed Hopper Collector	Building 509
A29/5	Plant Dust Collector	Building 509
A29/6	Bivac System	Building 509
A29/8	Hot Wash Tank	Building 509
A29/9	Filtrate Tank	Building 509
A29/10	Pack-Out Hopper Dust Collector	Building 509
<b>PVI PROCESS<sup>3</sup></b>		
A50/1	Butoxide Reactor System Vent	Building 696
A50/3	Phthalic Anhydride Weigh Tank Breather	Building 696
A50/4	No.1 Imide Reactor System Conservation Vent	Building 696
A50/5	No.2 Imide Reactor System Conservation Vent	Building 696
A50/6	Imide 1 Solvent Water Separator Conservation Vent	Building 696
A50/7	Imide 2 Solvent Water Separator Conservation Vent	Building 696
A50/8	Imide Solvent Receiver Vent	Building 696
A50/9	No.1 Imide Ejector Vent	Building 696
A50/10	No.2 Imide Ejector Vent	Building 696
A50/13	No.1 Chlorinator Ejector Vents	Building 696
A50/14	No.2 Chlorinator Ejector Vents	Building 696
A50/15	Condensation Reactor Conservation Vent	Building 696
A50/16	Butoxide Feed Tank Conservation Vent	Building 696
A50/17	Crystalliser 1 Conservation Vent	Building 696
A50/18	Crystalliser 2 Conservation Vent	Building 696
A50/19	No.1 Glycol Expansion Pot Breathers	Building 696
A50/20	No.2 Glycol Expansion Pot Breathers	Building 696
A50/21	Centrifuge Conservation Vent	Building 696
A50/22	Settler Conservation Vent	Building 696
A50/23	Wet Cake Hopper Vent	Building 696
A50/24	Dryer Process Vent	Building 696

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A50/25	Mill Feed Hopper Vent	Building 696
A50/26	Dust Collector Vent	Building 696
A50/27	Butyl Oleate Storage Vent	Tank Farm North of Building 696
A50/28	Mother Liquor Storage Conservation Vent	North of Building 696
A50/29	Luwa Ejector Vent	Building 696
A50/30	Cyclohexylmercaptan Carbon Absorption System	Building 696
A50/31	Cyclohexylmercaptan Storage Seal Pot Vent	Tank Farm North of Building 696
A50/33	Ammonia Scrubber Vent	Tank Farm North of Building 696
A50/34	Solvent Storage Conservation Vent	Tank Farm North of Building 696
A50/35	Butanol Storage Conservation Vent	Tank Farm North of Building 696
A50/36	Phthalic Anhydride Storage Scrubber Vent	Tank Farm North of Building 696
A50/37	Residue Storage Conservation Vent	Tank Farm North of Building 696
A50/40	Strong Effluent Sump Vent	North of Building 696
A50/41	Plant Vacuum Cleaning Vent	Building 696
<b>UTILITIES<sup>4</sup></b>		
A51/1	No.9 Package Boiler	Building 207
A51/2	No.10 Waste Heat Boiler (Gas Turbine)	Building 208
A51/3	No.11 Package Boiler	Building 207
A51/4	No.12 Package Boiler	Building 207
A51/5	Salt Saturator Tank	North of Building 207
A53/1	Kerosene Storage Tank Conservation Vent	East of Building 207
A56/1	Poly Aluminium Chloride Storage Tank Vent	Process Water Treatment Plant
A56/2	Sodium Chlorite Storage Tank Vent	Process Water Treatment Plant
A56/3	Hydrochloric Acid Tank Vent	Process Water Treatment Plant
A59/1	Nitrogen Generator	Building 207
A92/1	Fire Water Pumps – Diesel Storage Tank Vent	North of Building 217
<b>WASTE WATER TREATMENT PLANT (WWTP)<sup>4</sup></b>		
A71/1	Sludge Handling Odour Extraction System	North of Sludge Handling Tanks
A71/2	Sludge Centrifuge Odour Extraction System	South of Centrifuge Building
A71/3	Sulphuric Acid Storage Tank Vent	Chemical Storage Area
A71/4	Caustic Soda Storage Tank Vent	Chemical Storage Area
A71/5	Phosphoric Acid Storage Tank Vent	Chemical Storage Area
A71/6	Ammonium Hydroxide IBC Vent	Chemical Storage Area

<sup>1</sup> Drg. 88C01023, <sup>2</sup> Drg. 88C01025, <sup>3</sup> Drg. 88C01027, <sup>4</sup> Drg. 88C01029

2.2.1.3 The limits for emissions to air for the parameter(s) and emission point(s) set out in Table 2.2.2 shall not be exceeded.

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**Table 2.2.2 : Emission limits to air and monitoring**

Emission point reference	Parameter	Limit (including Reference Period) <sup>1</sup>	Monitoring frequency	Monitoring method
<b>TMQ Process</b> A20/1, A20/6, A20/14, A20/19 A20/25	Acetone	2000g/h	Annually	BS EN 13649
<b>DPG Process</b> A15/7 A15/12 A29/3	Aniline	25g/h 350g/h 100g/h	Quarterly	BS EN 13649
<b>TMQ Process</b> A20/13, A20/22		100g/h		
<b>DPG Process</b> A15/9, A15/10 A15/21, A15/51 A15/53, A29/4 A29/1 A29/9	Aniline	20g/h 20g/h 5g/h 20g/h 35g/h	Annually	BS EN 13649
<b>TMQ Process</b> A20/1, A20/6, A20/10, A20/14, A20/19, A20/25		100g/h		
<b>PVI Process</b> A50/1 A50/9	n-Butanol	1400g/h 900g/h	Annually	BS EN 13649
<b>PVI Process</b> A50/10	White Spirit	320g/h	Quarterly	BS EN 13649
<b>PVI Process</b> A50/9 A50/22 A50/25	White Spirit	320g/h 1300g/h 1500g/h	Annually	BS EN 13649
<b>TMQ Process</b> A20/10, A20/13	VOC <sup>3</sup>	100g/h	Quarterly	USEPA Method 25A
<b>TMQ Process</b> A20/1, A20/6, A20/19	VOC <sup>3</sup>	100g/h	Annually	USEPA Method 25A
<b>DPG Process</b> A15/7	Ammonia	75g/h	Quarterly	VDI 2461
<b>DPG Process</b> A15/9, A15/10 A15/21, A29/9 A29/1	Ammonia	15g/h 20g/h 40g/h	Annually	VDI 2461
<b>PVI Process</b> A50/1 A50/6, A50/7 A50/9		100g/h 20g/h 25g/h		

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A50/10		200g/h		
<b>PVI Process</b> A50/13, A50/14	Cyclohexylmercaptan (as H <sub>2</sub> S)	2mg/m <sup>3</sup>	Annually	NIOSH 2542
<b>DPG Process</b> A15/53	HCN	2g/h	Annually	NIOSH 7904
<b>DPG Process</b> A15/53	CNCl	2g/h	Annually	A measured volume of stack gas is drawn from the stack through a sorbent tube. The collected samples are solvent desorbed and analysed by GC with an FID detector.
<b>PVI Process<sup>2</sup></b> To be determined	H <sub>2</sub> S	To be determined	To be agreed	To be established

Note 1: See Section 6 for reference conditions, limits are hourly average

Note 2: See improvement programme Reference 45

Note 3: VOC refers to TMQ only

2.2.1.4 No condition applies

## 2.2.2 Emissions to water (other than groundwater), including heat, from specified points

2.2.2.1 This Part 2.2.2 of this Permit shall not apply to releases of odour, noise or vibration or to releases to groundwater.

### Emissions to Water (other than to Sewer)

2.2.2.2 Conditions 2.2.2.3 - 2.2.2.6 shall not apply to emissions to sewer.

2.2.2.3 Emissions to water from the emission points specified in Table 2.2.4 shall only arise from the sources specified in that Table

**Table 2.2.4: Emission point to water**

<b>Emission Point Reference or description</b>	<b>Source</b>	<b>Receiving Water</b>
W1 Waste Water Treatment Plant (WWTP), Normal Final Discharge	Treated water from the site's biological effluent treatment plant(WWTP)	River Dee
W2 Waste Water Treatment Plant Bypass, Final Effluent Discharge	Treated water from the site's biological effluent treatment plant(WWTP)	Tref-y-Nant Brook
W3 Non-Routine Discharge of Processing/Cooling Water	Site Process/Cooling Water System	Tref-y-Nant Brook

- 2.2.2.4 The limits for the emissions to water for the parameters and emission points set out in Table 2.2.5 shall not be exceeded.
- 2.2.2.5 Where a substance is specified in Table 2.2.5 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

**Table 2.2.5 : Emission limits to water and monitoring**

Emission point reference	Parameter	Limit (including Reference Period)	Monitoring frequency*	Monitoring method
W1, W2*	Maximum Flow Rate	92.5l/s	Continuous	On-line electromagnetic flow meter
	Maximum Discharge Volume	8000m <sup>3</sup> /day	Continuous	On-line electromagnetic flow meter
	pH	Min.6 Max.9	Continuous	On-line pH meter
	Biological Oxygen Demand (BOD) (5 day ATU @20° C)	30mg/l	Annual	Seeding with micro-organisms and measuring dissolved oxygen after 5days
	Chemical Oxygen Demand (COD) (2h)	250mg/l	Weekly	Dichromate oxidation
	Suspended Solids (dried @ 105°C)	90mg/l	Daily	Gravimetric
	Ammoniacal nitrogen (expressed as Nitrogen)	15mg/l	Daily	Ion Selective Electrode
	Free Cyanide	0.05mg/l	Weekly	Free cyanide is complexed and absorbance measured at 600nm
	Total Zinc	0.5mg/l	Weekly	Inductively Coupled Plasma (ICP)
	Total Iron	5.0mg/l	Weekly	ICP
	Total Mercury	12µg/l (Note 1)	(Note 2)	(Note 2)
	Total Cadmium	2µg/l (Note 1)	(Note 2)	(Note 2)
	Chloride (Cl)	25000kg/day	Sampling – Daily, Week-day samples are analysed, week-end samples retained until Monday's result determined.	Ion Chromatography
	Total Phenol	0.2mg/l	Sampling and Analysis – as for chloride.	HPLC with electrochemical detector
Total Tetrachloroethene	2.5µg/l (Note 1)	Sampling – Daily, Week-day samples are analysed, week-end samples retained until Monday's result determined.	Solvent extraction with analysis by GCMS	

**W3**

Maximum Flow Rate	70.8l/s	Non-routine discharge	Manual control
Maximum Discharge Volume	455m <sup>3</sup> /day		Manual control
pH	Min.5 Max.10		Manual control
Biological Oxygen Demand (BOD) (5 day ATU @ 20°C)	20mg/l		Seeding with micro-organisms and measuring dissolved oxygen after 5days
Chemical Oxygen Demand (COD) (2h)	50mg/l		Dichromate oxidation
Suspended Solids	30mg/l		Gravimetric
Total Phenol	0.5mg/l		HPLC with electrochemical detector

\* Monitoring frequencies do not apply to W2

Note 1: Annual average concentration (interim figure until limit revised based on empirical results)

Note 2: Calculation method only required until limit revised based on empirical results, however, a minimum of monthly monitoring is required to establish revised limits.

2.2.2.6 No condition applies.

### Emissions to sewer

2.2.2.7 No emission from the Permitted Installation shall be made to sewer.

2.2.2.8 No condition applies.

2.2.2.9 No condition applies.

2.2.2.10 No condition applies

### 2.2.3 Emissions to groundwater

2.2.3.1 No emission from the Permitted Installation shall give rise to the introduction into groundwater of any substance in List I (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)).

2.2.3.2 No emission from within the Permitted Installation shall give rise to the introduction into groundwater of any substance in List II (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)) so as to cause pollution (as defined in the Groundwater Regulations 1998 (S.I. 1998 No. 2746)).

- 2.2.3.3 For substances other than those in List I or II (as defined in the Groundwater Regulations 1998 (SI 1998 No.2746)), the Operator shall use BAT to prevent or where that is not practicable to reduce emissions to groundwater from the Permitted Installation provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

## 2.2.4 Fugitive emissions of substances to air

- 2.2.4.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to air from the Permitted Installation in particular from:

- storage areas
- buildings
- pipes, valves and other transfer systems
- open surfaces

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

- 2.2.4.2 The Operator shall use BAT so as to prevent or where that is not practicable to reduce emissions of litter from the Permitted Installation provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

## 2.2.5 Fugitive emissions of substances to water and sewer

- 2.2.5.1 Subject to condition 2.2.5.2 below, the Operator shall use BAT so as to prevent or where that is not practicable to reduce fugitive emissions of substances to water (other than Groundwater) and sewer from the Permitted Installation in particular from:

- all structures under or over ground
- surfacing
- bunding
- storage areas

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

- 2.2.5.2 There shall be no release to water that would cause a breach of an EQS established by the UK Government to implement the Dangerous Substances Directive 76/464/EEC.

## 2.2.6 Odour

- 2.2.6.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce odorous emissions from the Permitted Installation, in particular by:
- limiting the use of odorous materials
  - restricting odorous activities
  - controlling the storage conditions of odorous materials
  - controlling processing parameters to minimise the generation of odour
  - optimising the performance of abatement systems
  - timely monitoring, inspection and maintenance
  - employing, where appropriate, an approved odour management plan
- provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

## 2.2.7 Emissions to Land

- 2.2.7.1 This Part 2.2.7 of this Permit shall not apply to emissions to groundwater.
- 2.2.7.2 No emission from the Permitted installation shall be made to land.
- 2.2.7.3 No condition applies

## 2.2.8 Equivalent Parameters or Technical Measures

- 2.2.8.1 The Operator shall comply with the requirements specified in Table 2.2.11, which supplement or replace emission limit values in accordance with Regulation 12(8) of the PPC Regulations.

**Table 2.2.11 Equivalent parameters and technical measures**

Parameter or measure	Requirement or description of measure, and frequency if relevant
None required	

## 2.3 Management

- 2.3.1 A copy of this Permit and those parts of the application referred to in this Permit shall be available, at all times, for reference by all staff carrying out work subject to the requirements of the Permit.

### *Training*

- 2.3.2 The Permitted Installation shall be supervised by staff who are suitably trained and fully conversant with the requirements of this Permit.

- 2.3.3 All staff shall be fully conversant with those aspects of the Permit conditions which are relevant to their duties and shall be provided with adequate professional technical development and training and written operating instructions to enable them to carry out their duties.
- 2.3.4 The Operator shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and shall keep records of all relevant training.

#### **Maintenance**

- 2.3.5 All plant and equipment used in operating the Permitted Installation, the failure of which could lead to an adverse impact on the environment, shall be maintained in good operating condition.
- 2.3.6 The Operator shall maintain a record of relevant plant and equipment covered by condition 2.3.5 and for such plant and equipment:
- 2.3.6.1 a written or electronic maintenance programme; and
  - 2.3.6.2 records of its maintenance.

#### **Incidents and Complaints**

- 2.3.7 The Operator shall maintain and implement written procedures for:
- 2.3.7.1 taking prompt remedial action, investigating and reporting actual or potential non-compliance with operating procedures or emission limits and if such event occur;
  - 2.3.7.2 investigating incidents, (including any malfunction, breakdown or failure of plant, equipment or techniques, down time, any short term and long term remedial measures and near misses) and prompt implementation of appropriate actions; and
  - 2.3.7.3 ensuring that detailed records are made of all such actions and investigations.
- 2.3.8 The Operator shall record and investigate complaints concerning the Permitted Installation's effects or alleged effects on the environment. The record shall give the date and nature of complaint, time of complaint, name of complainant (if given), a summary of any investigation and the results of such investigation and any actions taken.

## **2.4 Efficient use of raw materials**

- 2.4.1 The Operator shall -
- 2.4.1.1 maintain the raw materials table or description submitted in response to Section 2.4 of the Application and in particular consider on a periodic basis whether there are suitable alternative materials to reduce environmental impact;

- 2.4.1.2 carry out periodic waste minimisation audits and water use efficiency audits. If such an audit has not been carried out in the 2 years prior to the issue of this Permit, then the first such audit shall take place within 2 years of its issue. The methodology used and an action plan for increasing the efficiency of the use of raw materials or water shall be submitted to the Agency within 2 months of completion of each such audit and a review of the audit and a description of progress made against the action plan shall be submitted to the Agency at least every 4 years thereafter; and
- 2.4.1.3 ensure that incoming water use is directly measured and recorded.

## **2.5 Waste Storage and Handling**

- 2.5.1 The Operator shall design, maintain and operate all facilities for the storage and handling of waste on site such that there are no releases to water or land during normal operation and that emissions to air and the risk of accidental release to water or land are minimised.

## **2.6 Waste recovery or disposal**

- 2.6.1 Waste produced at the Permitted Installation shall be recycled or recovered unless technically and/or economically impossible.
- 2.6.2 The Operator shall maintain the waste recovery or disposal table or description submitted in response to Section 2.6 of the Application and in particular identify the best practicable environmental options for waste disposal.
- 2.6.3 The Operator shall maintain and implement a system which ensures that a record is made of the quantity, composition, origin, destination (including whether this is a recovery or disposal operation) and where relevant removal date of any waste that is produced at the Permitted Installation.
- 2.6.4 No condition applies

## **2.7 Energy Efficiency**

- 2.7.1 The Operator shall produce a report on the energy consumed at the Permitted Installation over the previous calendar year, by 31 January each year, providing the information required by condition 4.1.2.
- 2.7.2 The Operator shall maintain and update annually an energy management system which shall include, in particular, the monitoring of energy flows and targeting of areas for improving energy efficiency.

- 2.7.3 The Operator shall design, maintain and operate the Permitted Installation so as to secure energy efficiency, taking into account relevant guidance including the Agency's Energy Efficiency Horizontal Guidance Note H2 as from time to time amended. Energy efficiency shall be secured in particular by:
- ensuring that the appropriate operating and maintenance systems are in place;
  - ensuring that all plant is adequately insulated to minimise energy loss or gain;
  - ensuring that all appropriate containment methods, (e.g. seals and self-closing doors) are employed and maintained to minimise energy loss;
  - employing appropriate basic controls, such as simple sensors and timers, to avoid unnecessary discharge of heated water or air;
  - where building services constitute more than 5% of the total energy consumption of the installation, identifying and employing the appropriate energy efficiency techniques for building services, having regard in particular to the Building services part of the Agency's Energy Efficiency Horizontal Guidance Note H2; and
  - maintaining and implementing an energy efficiency plan which identifies energy saving techniques that are applicable to the activities and their associated environmental benefit and prioritises them, having regard to the appraisal method in the Agency's Energy Efficiency Horizontal Guidance Note H2.

## 2.8 Accident prevention and control

- 2.8.1 The Operator shall maintain and implement when necessary the accident management plan submitted or described in response to Section 2.8 of the Application. The plan shall be reviewed at least every 2 years or as soon as practicable after an accident, whichever is the earlier, and the Agency notified of the results of the review within 2 months of its completion.

## 2.9 Noise and Vibration

- 2.9.1 The Operator shall use BAT so as to prevent or where that is not practicable to reduce emissions of noise and vibration from the Permitted Installation, in particular by:
- equipment maintenance, eg. of fans, pumps, motors, conveyors and mobile plant;
  - use and maintenance of appropriate attenuation, eg. silencers, barriers, enclosures;
  - timing and location of noisy activities and vehicle movements;
  - periodic checking of noise emissions, either qualitatively or quantitatively; and

- maintenance of building fabric,

provided always that the techniques used by the Operator shall be no less effective than those described in the Application, where relevant.

## **2.10 On-site Monitoring**

- 2.10.1 The Operator shall maintain and implement an emissions monitoring programme which ensures that emissions are monitored from the specified points, for the parameters listed in and to the frequencies and methods described in Tables 2.2.2 and 2.2.5, unless otherwise agreed in writing, and that the results of such monitoring are assessed. The programme shall ensure that monitoring is carried out under an appropriate range of operating conditions.
- 2.10.2 The Operator shall carry out environmental monitoring to the frequencies and methods described in Table 2.10.1

**Table 2.10.1 : Other monitoring requirements**

<b>Emission point reference or source or description of point of measurement</b>	<b>Substance or parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring method</b>	<b>Other specifications</b>
Pontcysllite Adit (Note 1)	TOC	Sample – daily	TOC: UV/Sodium persulphate digestion and infrared detection	None
Tref-y-nant Brook (Note 1)	Phenol  Micro-pollutants	Analysis – TOC (daily), micro-pollutants & phenol (weekly)	Phenol: HPLC with electrochemical detector  Micro-pollutants: Solvent extraction with analysis by GCMS	
Factory Boreholes (Middle, South), Brook Culvert Sump (Note 1), Road Culvert Sump (Note 1), Rhosymedre Quarry Leachate (Note 1), Rhosymedre Quarry b/h B3 (Note 1)	TOC  Phenol  Micro-pollutants	Sample and analysis - monthly	See above	None
River Dee Upstream (Note 1)	Micro-pollutants	Sample – daily Analysis - weekly	See above	None
River Dee Downstream (Note 1)	Micro-pollutants	Sample – daily Analysis – Monday-Friday	See above	None

Note 1: This is an off-site environmental monitoring condition

2.10.3 No condition

2.10.4 No condition

2.10.5 The Operator shall notify the Agency at least 14 days in advance of undertaking monitoring and/ or spot sampling, where such notification has been requested in writing by the Agency.

2.10.6 The Operator shall maintain records of all monitoring taken or carried out (this includes 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.

- 2.10.7 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme in condition 2.10.1 of this Permit and the environmental or other monitoring specified in condition 2.10.2 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing.
- 2.10.8 There shall be provided:
- 2.10.8.1 safe and permanent means of access to enable sampling/monitoring to be carried out in relation to the emission points specified in Schedule 2 to this Permit, unless otherwise specified in that Schedule; and
  - 2.10.8.2 safe means of access to other sampling/monitoring points when required by the Agency.

## **2.11 Closure and Decommissioning**

- 2.11.1 The Operator shall maintain and operate the Permitted Installation so as to prevent or minimise any pollution risk, including the generation of waste, on closure and decommissioning in particular by:-
- 2.11.1.1 attention to the design of new plant or equipment;
  - 2.11.1.2 the maintenance of a record of any events which have, or might have, impacted on the condition of the site along with any further investigation or remediation work carried out; and
  - 2.11.1.3 the maintenance of a site closure plan to demonstrate that the installation can be decommissioned avoiding any pollution risk and returning the site of operation to a satisfactory state.
- 2.11.2 Notwithstanding condition 2.11.1 of this Permit, the Operator shall carry out a full review of the Site Closure Plan at least every 4 years.
- 2.11.3 The site closure plan shall be implemented on final cessation or decommissioning of the Permitted activities or part thereof.
- 2.11.4 The Operator shall give at least 30 days written notice to the Agency before implementing the site closure plan.

## **2.12 Multiple Operator installations**

- 2.12.1 There are no conditions as a result of the interactions of the Permits covering this installation

## **2.13 Transfer to effluent treatment plant**

- 2.13.1 No transfers to effluent treatment plant are controlled under this part of this Permit.
- 2.13.2 No condition applies.

### **3 Records**

- 3.1 The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:-
- 3.1.1 be made available for inspection by the Agency at any reasonable time;
  - 3.1.2 be supplied to the Agency on demand and without charge;
  - 3.1.3 be legible;
  - 3.1.4 be made as soon as reasonably practicable;
  - 3.1.5 indicate any amendments which have been made and shall include the original record wherever possible;
  - 3.1.6 be retained at the Permitted Installation, or other location agreed by the Agency in writing, for a minimum period of 4 years from the date when the records were made, unless otherwise agreed in writing; and
  - 3.1.7 where they concern the condition of the site of the Installation, be kept at the Permitted Installation, or other location agreed by the Agency in writing, until all parts of the Permit have been surrendered.

## 4 Reporting

- 4.1.1 All reports and written and or oral notifications required by this Permit and notifications required by Regulation 16 of the PPC Regulations shall be made or sent to the Agency using the contact details notified in writing to the Operator by the Agency.
- 4.1.2 The Operator shall, unless otherwise agreed in writing, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:-
  - 4.1.2.1 in respect of the parameters and emission points specified in Table S2 to Schedule 2;
  - 4.1.2.2 for the reporting periods specified in Table S2 to Schedule 2 and using the forms specified in Table S3 to Schedule 3;
  - 4.1.2.3 giving the information from such results and assessments as may be required by the forms specified in those Tables; and
  - 4.1.2.4 to the Agency within 28 days of the end of the reporting period.
- 4.1.3 The Operator shall submit to the Agency a report on the performance of the Permitted Installation over the previous year, by 31 January each year, providing the information listed in Tables S4.1 and S4.2 of Schedule 4, assessed at any frequency specified therein, and using the form specified in Table S3 to Schedule 3.
- 4.1.4 The Operator shall review fugitive emissions, having regard to the application of Best Available Techniques, on an annual basis, or such other period as shall be agreed in writing by the Agency, and a summary report on this review shall be sent to the Agency detailing such releases and the measures taken to reduce them within 3 months of the end of such period.
- 4.1.5 Where the Operator has a formal environmental management system applying to the Permitted Installation which encompasses annual improvement targets the Operator shall, not later than 31 January in each year, provide a summary report of the previous year's progress against such targets.
- 4.1.6 The Operator shall, within 6 months of receipt of written notice from the Agency, submit to the Agency a report assessing whether all appropriate preventive measures continue to be taken against pollution, in particular through the application of the best available techniques, at the installation. The report shall consider any relevant published technical guidance current at the time of the notice which is either supplied with or referred to in the notice, and shall assess the costs and benefits of applying techniques described in that guidance, or otherwise identified by the Operator, that may provide environmental improvement.

## 5 Notifications

- 5.1.1 The Operator shall notify the Agency **without delay** of:-
- 5.1.1.1 the detection of an emission of any substance which exceeds any limit or criterion in this Permit specified in relation to the substance;
  - 5.1.1.2 the detection of any fugitive emission which has caused, is causing or may cause significant pollution unless the quantity emitted is so trivial that it would be incapable of causing significant pollution;
  - 5.1.1.3 the detection of any malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution; and
  - 5.1.1.4 any accident which has caused, is causing or has the potential to cause significant pollution.
- 5.1.2 The Operator shall submit written confirmation to the Agency of any notification under condition 5.1.1, by sending:-
- 5.1.2.1 the information listed in Part A of Schedule 1 to this Permit within 24 hours of such notification; and
  - 5.1.2.2 the more detailed information listed in Part B of that Schedule as soon as practicable thereafter;
- and such information shall be in accordance with that Schedule.
- 5.1.3 The Operator shall give written notification as soon as practicable prior to any of the following:-
- 5.1.3.1 permanent cessation of the operation of part or all of the Permitted Installation;
  - 5.1.3.2 cessation of operation of part or all of the Permitted Installation for a period likely to exceed 1 year; and
  - 5.1.3.3 resumption of the operation of part or all of the Permitted Installation after a cessation notified under condition 5.1.3.2.
- 5.1.4 The Operator shall notify the Agency, as soon as reasonably practicable, of any information concerning the state of the Site which adds to that provided to the Agency as part of the Application.
- 5.1.5 The Operator shall notify the following matters to the Agency in writing within 14 days of their occurrence:-
- 5.1.5.1 where the Operator is a registered company:-
    - any change in the Operator's trading name, registered name or registered office address;
    - any change to particulars of the Operator's ultimate holding company (including details of an ultimate holding company where an Operator has become a subsidiary)
    - any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement or being wound up;
  - 5.1.5.2 where the Operator is a corporate body other than a registered company:
    - any change in the Operator's name or address;
    - any steps taken with a view to the dissolution of the Operator.
  - 5.1.5.3 In any other case: -
    - the death of any of the named Operators (where the Operator consists of more than one named individual);

**Notifications**

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- any change in the Operator's name(s) or address(es);
  - 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 them being in a partnership, dissolving the partnership;
- 5.1.6 Where the Operator has entered into a Climate Change Agreement with the Government, the Operator shall notify the Agency within one month of:-
- 5.1.6.1 a decision by the Secretary of State not to re-certify that Agreement.
  - 5.1.6.2 a decision by either the Operator or the Secretary of State to terminate that agreement.
  - 5.1.6.3 any subsequent decision by the Secretary of State to re-certify such an Agreement.
- 5.1.7 Where the Operator has entered into a Direct Participant Agreement in the Emissions Trading Scheme which covers emissions relating to the energy consumption of the activities, the Operator shall notify the Agency within one month of:-
- 5.1.7.1 a decision by the Operator to withdraw from or the Secretary of State to terminate that agreement.
  - 5.1.7.2 a failure to comply with an annual target under that Agreement at the end of the trading compliance period.
- 5.1.8 The Operator shall notify the Agency in writing of any known or planned introduction or material change in respect to emissions from the permitted installation to water that may increase or introduce into the effluent any "dangerous substance" as defined in List I and List II of the dangerous substances directive 76/464/EEC and its daughter directives.

## 6 Interpretation

6.1.1 In this Permit, the following expressions shall have the following meanings:-

*"Application"* means the application for this Permit, together with any response to a notice served under Schedule 4 to the PPC Regulations and any operational change agreed under the conditions of this Permit and additional information received between Nov.03 – Jan. 04 (ref Site Report) and on 16/12/03, 11/12/03, 09/01/04, 30/01/04, 05/03/04, 23/03/04 and 01/04/04.

*"background concentration"* means such concentration of that substance as is present in:

- water supplied to the site; or
- where more than 50% of the water used at the site is directly abstracted from ground or surface water on site, the abstracted water; or
- where the Permitted Installation uses no significant amount of supplied or abstracted water, the precipitation on to the site.

*"BAT"* means best available techniques means the most effective and advanced stage of development of activities and their methods of operation which indicates the practical suitability of particular techniques to prevent and where that is not practicable to reduce emissions and the impact on the environment as a whole. For these purposes: "available techniques" means "those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced inside the United Kingdom, as long as they are reasonably accessible to the operator"; "best" means "in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole" and "techniques" "includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned." . In addition, Schedule 2 of the PPC Regulations has effect in relation to the determination of BAT.

*"Fugitive emission"* means an emission to air or water (including sewer) from the Permitted Installation which is not controlled by an emission or background concentration limit under conditions 2.2.1.3, 2.2.2.4, 2.2.2.5, 2.2.2.8 or 2.2.2.9 of this Permit.

*"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.

*"Land Protection Guidance"* means the version of the Agency guidance note "H7 - Guidance on the Protection of Land under the PPC Regime: Application Site Report and Site Protection and Monitoring Programme", including its appended templates for data reporting, which is current at the time of issue of the Permit.

*" $L_{Aeq,T}$ "* means the equivalent continuous A-weighted sound pressure level in dB determined over time period, T.

*" $L_{A90,T}$ "* means the A-weighted sound pressure level in dB exceeded for 90% of the time period, T.

*" $L_{AFmax}$ "* means the maximum A weighted sound level measurement in dB measured with a fast time weighting.

*"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 1.1.1 of this Permit.

**Interpretation**

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"PPC Regulations" means the Pollution, Prevention and Control (England and Wales) Regulations SI 2000 No.1973 (as amended) and words and expressions defined in the PPC Regulations shall have the same meanings when used in this Permit save to the extent they are specifically defined in this Permit.

"Sewer" means sewer within the meaning of section 219(1) of the Water Industry Act 1991.

"Staff" includes employees, directors or other officers of the Operator, and any other person under the Operator's direct or indirect control, including contractors.

"Year" means calendar year ending 31 December.

- 6.1.2 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.
- 6.1.3 Unless otherwise stated, any references in this Permit to concentrations of substances in emissions into air means:-
- 6.1.3.1 in relation to gases 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
  - 6.1.3.2 in relation to gases 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.
- 6.1.4 Where any condition of this Permit refers to the whole or parts of different documents, in the event of any conflict between the wording of such documents, the wording of the document(s) with the most recent date shall prevail to the extent of such conflict.

## Schedule 1 - Notification of abnormal emissions

This page outlines the information that the Operator must provide to satisfy conditions 5.1.1 and 5.1.2 of this Permit.

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 PPC Regulations.

### Part A

Permit Number	
Name of Operator	
Location of Installation	
Location of the emission	
Time and date of the emission	

Substance(s) emitted	Media	Best estimate of the quantity or the rate of emission	Time during which the emission took place

Measures taken, or intended to be taken, to stop the emission	
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### Part B

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 or harm which has been or may be caused by the emission	
The dates of any unauthorised emissions from the installation in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

\* authorised to sign on behalf of Flexsys Rubber Chemicals Ltd.

## **Schedule 2 - Reporting of monitoring data**

Parameters for which reports shall be made, in accordance with conditions 4.1.2 and 4.1.3 of this Permit, are listed below.

## Schedule 2 - Reporting of monitoring data

Table S2: Reporting of monitoring data			
Parameter	Emission point	Reporting period	Period begins
Acetone g/h	A20/1, A20/6, A20/14, A20/19, A20/25	Annually	01/01/04
Aniline g/h	A15/7, A15/9, A15/10, A15/12, A15/21, A51/51, A15/53, A29/1, A29/3, A29/4, A29/9, A20/13, A20/1, A20/22, A20/6, A20/10, A20/14, A20/19, A20/25	Annually	01/01/04
n-Butanol g/h	A50/1, A50/9	Annually	01/01/04
White Spirit g/h	A50/9, A50/10, A50/22, A50/25	Annually	01/01/04
VOC (TMQ only) g/h	A20/1, A20/6, A20/10, A20/13, A20/19	Annually	01/01/04
Ammonia g/h	A15/7, A15/9, A15/10, A15/21, A29/1, A29/9, A50/1, A50/6, A50/7, A50/9, A50/10	Annually	01/01/04
Cyclohexylmercaptan (as H <sub>2</sub> S) mg/m <sup>3</sup>	A50/13, A50/14	Annually	01/01/04
HCN g/h	A15/53	Annually	01/01/04
CNCl g/h	A15/53	Annually	01/01/04
H <sub>2</sub> S (Note 1)	To be determined	Annually	01/01/04
Maximum Flow Rate l/s	W1	Quarterly	31/03/04
Maximum Discharge Volume m <sup>3</sup> /day	W1	Quarterly	31/03/04
pH	W1	Quarterly	31/03/04
Biological Oxygen Demand (BOD) (5 day ATU @20° C) mg/l	W1	Annually	01/01/04
Chemical Oxygen Demand (COD) (2h) mg/l	W1	Quarterly	31/03/04
Suspended Solids (dried @ 105°C) mg/l	W1	Quarterly	31/03/04
Ammoniacal nitrogen (expressed as Nitrogen) mg/l	W1	Quarterly	31/03/04
Free Cyanide mg/l	W1	Quarterly	31/03/04
Total Zinc mg/l	W1	Quarterly	31/03/04
Total Iron mg/l	W1	Quarterly	31/03/04
Total Mercury µg/l	W1	Annually	01/01/04
Total Cadmium µg/l	W1	Annually	01/01/04
Chloride (Cl) kg/day	W1	Quarterly	31/03/04
Total Phenol mg/l	W1, Pontcysllite Adit. Tref-y-nant Brook, Factory Boreholes (Middle, South), Brook Culvert Sump, Road Culvert Sump, Rhosymedre Quarry Leachate, Rhosymedre Quarry b/h B3	Quarterly	31/03/04
Total Tetrachloroethene µg/l	W1	Annually	01/01/04
TOC mg/l	Pontcysllite Adit. Tref-y-nant Brook, Factory Boreholes (Middle, South), Brook Culvert	Quarterly	31/03/04

Permit and introductory note: IPPC Regulations 2000/1973

Schedule 2 - Reporting of monitoring data

	Sump, Road Culvert Sump, Rhosymedre Quarry Leachate, Rhosymedre Quarry b/h B3		
Micro-pollutants	Pontcysllte Adit. Tref-y-nant Brook, Factory Boreholes (Middle, South), Brook Culvert Sump, Road Culvert Sump, Rhosymedre Quarry Leachate, Rhosymedre Quarry b/h B3, River Dee Upstream, River Dee Downstream	Quarterly	31/03/04
Water usage		Annually	01/01/04
Energy usage		Annually	01/01/04
Waste disposal		Annually	01/01/04

Note 1 Units to be determined

## Schedule 3 - Forms to be used

Table S3: Reporting Forms		
Media / parameter	Form Number	Date of Form
Air	A1	01/03/04
Water (excluding sewer)	W1	01/03/04
Energy	E1	01/03/04
Waste Return	R1	01/03/04
Water usage	WU1	01/03/04
Performance indicators	PI1	01/03/04

## Schedule 4 - Reporting of performance data

Data required to be recorded and reported by Condition 4.1.3. The data should be assessed at the frequency given and reported annually to the Agency.

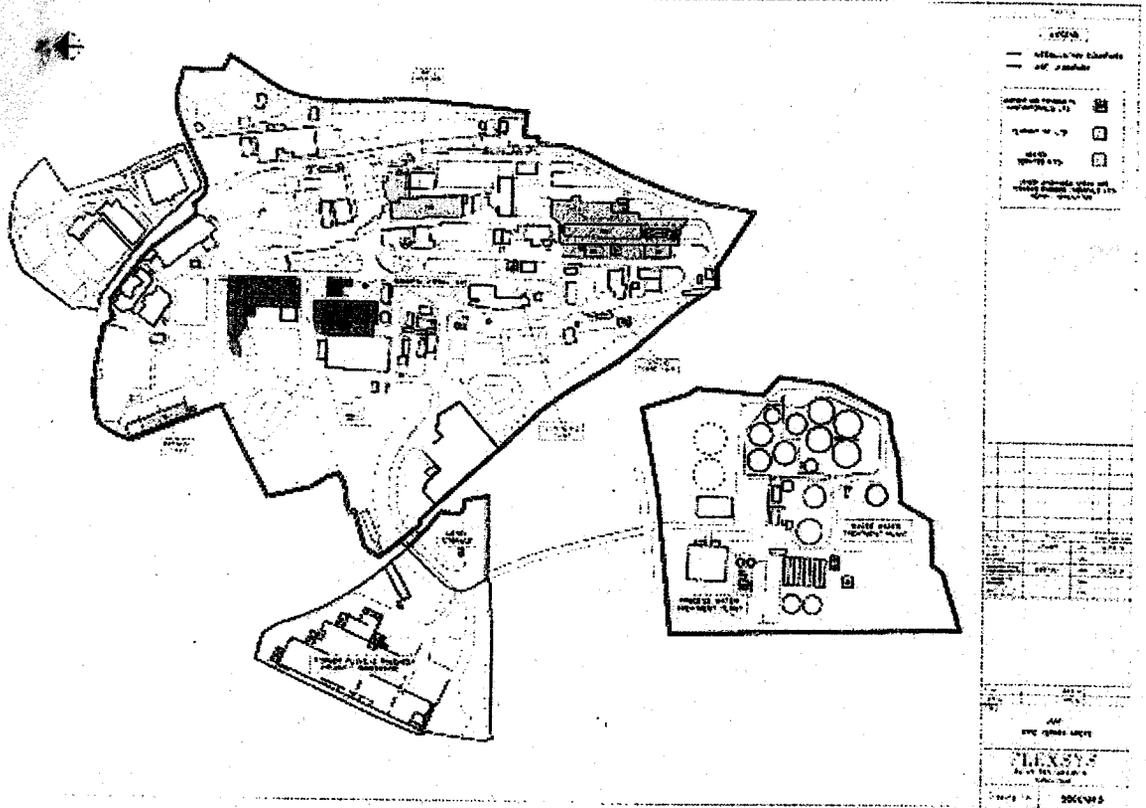
Table S4.1: Annual Production/Treatment	
Standard Unit Output <sup>1</sup>	
Standard Unit Output <sup>2</sup>	

Table S4.2: Performance parameters		
Parameter	Frequency of assessment	Performance indicator
COD	Annually	COD/standard unit output <sup>2</sup>
Ammoniacal nitrogen	Annually	Ammoniacal nitrogen/standard unit output <sup>1</sup>
Aniline (vented)	Annually	Aniline/standard unit output <sup>1</sup>

<sup>1</sup> Flexsys

<sup>2</sup> Installation

# Schedule 5 - Site Plan



END OF PERMIT