NORTH EAST LINCOLNSHIRE COUNCIL

www.nelincs.gov.uk

Permit with introductory note

Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended)

Installation address

Dunlop Oil and Marine Ltd
Moody Lane
Pyewipe
Grimsby
DN31 2SP

Permit Reference: EP/2002004

Contact Details:

Mr Danny Fox
Pollution Control Officer
North East Lincolnshire Council
Freeman House
Freeman Way
Grimsby
North East Lincolnshire
DN32 7AU

Tel: 01472 324787
Fax: 01472 324785

www.nelincs.gov.uk

E-mail **danny.fox@nelincs.gov.uk**

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 (as amended) (S.I.2000 No. 1973) ("the PPC Regulations") to operate an installation carrying out one or more of the activities listed in Part B to Schedule 1 of those Regulations, to the extent authorised by the Permit.

The permit includes conditions that have to be complied with. It should be noted that aspects of the operation of the installation which are not regulated by those conditions are subject to the condition implied by Regulation 12(10) of the PPC Regulations, that the Operator shall use the best available techniques for preventing or, where that is not practical, 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.

Brief description and installation regulated by this permit

Process using rubber as prescribed by Section 6/28(04) of Schedule 1 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended). The process utilises carbon black provided in sealed containers for direct discharge to a Banbury type mixer with other batch materials weighed, batched and milled at LEV equipped weigh/milling stations vented to abatement plant. Fittings for pipe construction are shot blasted in a Vacublast (model No AXT 200p0 shotblaster using aluminium oxide shot which is arrested by a Farr Europe Mk IV Tenkey cartridge filter with automatic reverse air jet cleaning . Degreasing is carried out in a Sheet Metal Structures Ltd . Degreasing tank with 2mx2m open area which is heated by site process steam. All site steam is raised by a gas fired boiler.

Superseded Licences/Consents/Authorisations relating to this installation		
Holder	**Reference Number**	**Date of Issue**
Dunlop oil and Marine Ltd	**PF/DLP/EPA/V1**	**13/05/1994**

Confidentiality

The Permit requires the Operator to provide information to North East Lincolnshire Council. The Council will place the information onto the public registers in accordance with the requirements of the PPC Regulations. If the operator considers that any information provided is commercially confidential, it may apply to North East Lincolnshire Council to have such information withheld from the register as provided in the PPC Regulations. To enable North East Lincolnshire Council to determine whether the information is commercially confidential, the Operator should clearly identify the information in question and should specify clear and precise reasons.

Variations to the permit

This Permit may be varied in the future. If at any time the activity or any aspect of the activity regulated by the following conditions changes such that the conditions no longer reflect the activity and require alteration, the Regulator should be contacted.

Surrender of the permit

Where an Operator intends to cease the operation of an installation (in whole or in part) the regulator should be informed in writing, such notification must include the information specified in regulation 20(3) of the PPC regulations.

Transfer of the permit or part of the permit

Before the Permit can be wholly or partially transferred to another person, a joint application to transfer the Permit has to be made by both the existing and proposed holders, in accordance with Regulation 18 of the PPC Regulations. A transfer will be allowed unless the Authority considers that the proposed holder will not be the person who will have control over the operation of the installation or will not ensure compliance with the conditions of the transferred Permit.

Responsibility under workplace health and safety legislation

This Permit is given in relation to the requirements of the PPC regulations. It must not be taken to replace any responsibilities you may have under Workplace Health and Safety legislation.

Appeal against permit conditions

Anyone who is aggrieved by the conditions attached to a Permit can appeal to the Secretary of State for the Environment, Food and Rural Affairs. Appeals must be made in accordance with the requirements of Regulation 27 and Schedule 8 of the PPC regulations.

Appeals should be received by the Secretary of State for Environment, Food and Rural Affairs. The address is as follows:

The Planning Inspectorate
Environmental Appeals Administration
Room 4/19 – Eagle Wing
Temple Quay House
2 The Square, Temple Quay
BRISTOL
BS1 6PN
Tel: 0117 372 8812
Fax: 0117 372 6093

Please Note

An appeal brought under paragraph (1) (c) or (d) in relation to the conditions in a permit will not suspend the effect of the conditions appealed against; the conditions must still be complied with.
In determining an appeal against one or more conditions, the Act allows the Secretary of State in addition to quash any of the conditions not subject to the appeal and to direct the local authority either to vary any of these other conditions.

End of introductory note

Permit issued under the Pollution Prevention and Control Regulations 2000

Permit

Permit Number
EP/020004

North East Lincolnshire Council (the Regulator) in exercise of its powers under Regulation 10 of the Pollution Prevention and Control Regulations 2000 (S.I. 2000 No. 1973) hereby permits.

Dunlop Oil and Marine Ltd ("the operator"),

Whose registered office is

Dunlop Oil and Marine Ltd
Moody Lane
Pyewipe
Grimsby
DN31 2SY

To operate an installation at

Dunlop Oil and Marine Ltd
Moody Lane
Pyewipe
Grimsby
DN31 2SY
to the extent authorised by and subject to the conditions of this Permit and within the boundary identified in condition A

Signed

Tony Neul
Authorised to sign on behalf of
North East Lincolnshire Council

Dated

22/11/05

CONDITIONS

Extent and limit of the installation

A The operator is authorised to carry out the activities and/or associated as specified and within the boundary shown in yellow on the plan below:-

DESCRIPTION OF AUTHORISED PROCESS

Process using rubber as prescribed by Section 6/28(04) of Schedule 1 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended). The process utilises carbon black provided in sealed containers for direct discharge to a Banbury type mixer with other batch materials weighed, batched and milled at LEV equipped weigh/milling stations vented to abatement plant. Fittings for pipe construction are shot blasted in a Vacublast (model No AXT 200p0 shotblaster using aluminium oxide shot which is arrested by a Farr Europe Mk IV Tenkey cartridge filter with automatic reverse air jet cleaning . Degreasing is

carried out in a Sheet Metal Structures Ltd . All site steam is raised by a dual fuel fired boiler, gas and/or low sulphur fuel oil .

CONDITIONS

5. Emission limits, monitoring and other provisions

Non VOC Provisions

5.1 All processes / activities should comply with the emission limits and provisions with regard to non-VOC releases in Table 3.

Compliance Overview

5.2 For VOC emissions see table 4 part 2.

5.3 The provisions described in his Section are achievable using best available techniques described in Section 6.

- The reference conditions for limits in Section 5 are 273.15K, 101.3kPa, without correction for water vapour content, unless stated otherwise.

Non VOC Emission Limits

Table 3.

Row	Substance	Source	Emission limits / provisions	Type of monitoring	Monitoring frequency
2	Particulate matter	All processes / activities Total particulate matter from the storage, handling or mixing of carbon black Total particulate matter from any other source	10 mg/Nm³ as 30 minute mean for contained sources 50 mg/Nm³ as 30 minute mean for contained sources	Manual extractive testing	Annual
3	Oxides of Nitrogen (measured as nitrogen dioxide)	From turbines, reciprocating engines or boilers used as VOC abatement equipment	500 mg/Nm³ as 30 minute mean for contained sources	Manual extractive testing	Annual
4	Other non-VOC pollutants	All processes / activities It may be necessary to specify emission limits for other pollutants i.e. where the rubber curing system includes substances which may lead to the generation	Limits should be determined from other guidance notes	Manual extractive testing. See paragraphs 5.23, 5.24, 5.25 and 5.26	Annual

		of carbon disulphide, hydrogen sulphide or isocyanates			
5	Sulphur dioxide	All processes / activities All processes / activities using gas oil as defined in the Sulphur Content of Certain Liquid Fuels Directive (1999/32/EC)	1% wt/wt sulphur in fuel 0.2% wt/wt sulphur in fuel (before 1/01/2008) 0.1% wt/wt sulphur in fuel (from 1/01/2008)	Certification by supplier using test method ASTM D86 distillation	Every delivery

VOC Emission Limits

All Processes / Activities		
2	All process / activities existing prior 1 April 1992 Fugitive releases should be reduced by 50% of the fugitive releases for the period 12 months from 1 April 1999	Where fugitive releases are determined by Fugitive = $I_1 - O_8 - O_5 - O_1$ As determined using the solvent management plan (See paragraph 5.5)

Solvent Reduction Scheme

5.4 An operator may choose to use the Reduction Scheme for an installation to achieve emission reductions to a "Target Emission" equivalent to those, which would have been achieved if the concentration emission limits, had been applied.

The following scheme shall operate for installations for which a constant solid content of product can be assumed and used to define the reference point for emission reductions.

The operator shall forward an emission reduction plan, which includes in particular:

- Decreases in the average solvent content of the total input, and/or
- Increased efficiency in the use of solids

To achieve a reduction of the total emissions from the installation.

5.5 For activities existing prior to 1992 using carbon black the target value for an installation is calculated as follows:

$$\text{Target value} = \left\{ \frac{\text{solvent consumption in 1992}}{\text{Tonnes of rubber used (or number of rubber products produced in 1992}} \right\}$$

Target Value Calculations for Dunlop Oil and Marine Ltd for 1992:-

$$1.36 = \left\{ \frac{\text{5716 gallons – solvent consumption}}{\text{2097 tonnes rubber processed}} \right\} \times 0.5$$

Target Value = 1.36

2004 Calculations for solvent / rubber processed are:

$$0.62 = \left\{ \frac{\text{1893 gallons solvents}}{\text{1516 tonnes rubber processed}} \right\} \times 0.5$$

* This represents a 50% reduction in solvent usage.

5.6 The flexibility inherent in this compliance route should not be taken to encourage

- The replacement of a low or no organic solvent coating system with a conventional high organic solvent coating system, or
- The introduction of such a conventional high organic solvent coating system into a process/activity or
- The introduction of such a conventional high organic solvent coating system onto a product where it was not in use before, or
- The introduction of high solids formulations which have no be beneficial effect in the product but increase the solids used, except where a reduction in the overall VOC emissions can be demonstrated.

Regulators should seek prior notification of any proposal to introduce such systems, which should include reasons why lower organic solvent systems are not considered technically appropriate or practicable.

Determination of Solvent Consumption

5.7 Construction of inventories of materials consumed and disposed of may involve the identification of individual organic solvents, or solids. This may give rise to an issue of commercial confidentiality. Information supplied must be placed on the public register, unless exclusion has been granted on the grounds of commercial confidentiality or national security. (Further guidance can be found in Chapter 8 of the General Guidance Manual on policy and procedures for A2 and B installations)

5.8 A determination of the organic solvent consumption, the total mass of organic solvent inputs minus any solvents sent for reuse/recovery off-site, should be made and submitted to the regulator annually, preferably to coincide with the operators stocktaking requirements, in the form of a mass balance in order to determine the annual actual consumption of organic solvent (C):

Where: $C = I, O_8$

I, Total quantity of organic solvents, or their quantity in preparations purchased which are used as input into the process / activity.

A calculation of the purchased organic solvent Input (I^1) to the process / activity, is carried out be recording:

(i) The mass of organic solvent contained in raw materials and preparations in the initial stock (IS) at the start of the accounting period; plus

(ii) The mass of organic solvent contained in raw materials and preparations in the purchased stock (PS) during the accounting period.

(iii) Minus the mass or organic solvent contained in raw materials and preparations in the final stock (FS) at the end of the accounting period.

Total Organic Solvent (I^1) = IS + PS – FS

Solvent Management Plan

5.9 The Solvent Management Plan provides definition and calculations to demonstrate compliance with the VOC requirements if this note. The use of the standard definitions and calculations also ensures consistency of VOC compliance across installations with an industrial sector.

5.10 The definitions provided must be used in all calculations relating to the Solvent Management Plan (SMP) (Figure 5.1)

- For SED installations using the emission and fugitive limits, the SMP should be used for determining the fugitive emission (SED Box 11). Once completed, it need not be done until the equipment is modified.

- For SED installations using the total emission limit values, the SMP should be used to determine the total emission and the organic solvent input annually (SED Box 7)

- For process / activities using the reduction scheme, the SMP should be used to determine the actual emissions annually (SED Box 6)

Definitions:

The following definitions provide a framework for the mass balance calculations used in determining compliance.

Inputs of Organic Solvent in the time frame over which the mass balance us being calculated (I)

I^1 The quantity of organic solvents, or their quantity in raw materials and preparations purchased which are used as input into the process / activity (including organic solvents used in the cleaning of equipment, but not those used for the cleaning of the products).

I^2 The quantity of organic solvents or their quantity in raw materials and preparations recovered and reused as solvent input into the process / activity. (The recycled solvent s counted every time it is used to carry out the activity)

Outputs of Organic Solvents in the time frame over which the mass balance is being calculated (O)

O^1 Emissions in waste gases.

O^2 Organic solvents lost in water if appropriate taking into account waste water treatment when calculating O_5

O^3 The quantity of organic solvents which remains as contamination or residue in products output from the process / activity

O_4 Uncaptured emissions of organic solvents to air. This includes the general ventilation of rooms, where air is released to the outside environment via windows, doors, vents and similar openings.

O_5 Organic solvents and / or organic compounds lost due to chemical or physical reactions (including for example those which are destroyed e.g. by thermal oxidation or other waste gas or waste water treatments, or captured e.g. by absorption, as long as they are not counted under O_6, O_7 or O_8).

O_6 Organic solvents contained in collected waste.

O_7 Organic solvents, or organic solvents contained in preparations, which are sold or are intended to be sole as a commercially valued product.

O_8 Organic solvents contained in preparations recovered for reuse but not as input into the process / activity, as long as not counted under O_7.

O_9 Organic solvents released in other ways.

Designated Risk Phrase Materials, Emission Limits and Conditions

SED Box 8 SED requirements for Designated Risk Phrase Materials (articles 5,7,8,9) All activities using Designated Risk Phrase Materials Designated Risk Phrase Materials used in SED installations must be either replaced, controlled and or limited, as set out below.		
All SED installations. i.e. existing, new and substantially changed		
Row	Designated Risk Phrase Materials with risk phrases R45, R46, R49, R60, R61	
1	Requirements • Replace as far as possible (taking into account guidance under article 7(1) of the SED. See Appendix 2 by less harmful substances or preparations	Monitoring / timescales • Existing installations must comply within the shortest possible time • New and substantially changed installations must comply from 1 April 2001
	• Control under contained conditions as far as technically and economically feasible to safeguard public health and the environment. Normally, in accordance with the guidance provided within Section 6 of the note	• Existing installations must comply by 31 October 2007 • New and substantially changed installations must comply from 1 April 2001
	• Limit-where the sum of the mass flows of all the discharges of all compounds causing the risk phrase labelling is greater of equal to 10 g/h, a limit value of 2 mg/Nm³ for the mass sum of the individual compounds must apply	Annual manual extractive testing. See paragraphs 5.23, 5.24, 5.25, 5.26, 5.27 and SED Box 10 • Existing installations must comply by 31 October 2007 • New and substantially changed installations must comply from 1 April 2001
Halogenated VOC with risk phrase R40		
2	Requirements • Control under contained conditions as far as technically and economically feasible to safe-guard public health and the environment. Normally, in accordance with the guidance provided within Section 6 of the note	Monitoring / timescales • Existing installations must comply by 31 October 2007 • New and substantially changed installations must comply from 1 April 2001
	• Limit –where the sum of the mass flows of all the discharges of all the compounds causing the risk phrase labelling is greater or equal to 100g/h, a limit value of 20 mg/Nm³ for the mass sum of the individual compounds must apply	Annual manual extractive testing. See paragraphs 5.23, 5.24, 5.25, 5.26, 5.27 and SED Box 10 • Existing installations must comply by 31 October 2007 • New and substantially changed installations must comply from 1 April 2001
N.B Substances or preparations or halogenated VOC which have been assigned as designated risk phrase materials, since 29 March 1999, or which are assigned as designated risk phrase materials in future must apply the replace, control and limit requirements, above within the shortest possible time from the date at which substances or preparations or halogenated VOC became/become designated risk phrase materials In determining the Shortest Possible Time, the operator will need to justify their timescales taking into account the following four factors contained within the SED: • Fitness for use; • Potential effects on human health; • Potential effects on the environment; and • The economic consequences, in particular the costs and the benefits of the options available For details of risk phrases see references I and j		

Other Provisions

Monitoring, Investigation and Recording

5.11 The need for and scope of testing and the frequency and time of sampling depend on local circumstances, operational practice, and the scale of operation. As part of proper supervision the operator will monitor emissions, make tests and inspections of the process / activity and keep records, in particular:

- The operator should keep records if inspections, tests and monitoring, including all non-continuous monitoring, inspections and visual assessments. In such cases:
    - Current records should be kept in site and made available for the regulator to examine
    - Records should be kept by the operator for at least two years

5.12 The regulator needs to be informed of monitoring to be carried out and the results; the results should include process conditions at the time of monitoring.

- The process operator should provide a list of key abatement plant and should have a written plan for dealing with its failure, in order to minimise any adverse effects.
- The operator should notify the regulator at least 7 days before any periodic monitoring exercise to determine compliance with emission limit values. The operator should state the provisional time and date of monitoring, pollutants to be tested and the methods to be used.
- The results of non-continuous emission testing should be forwarded to the regulator within 8 weeks of the completion of the sampling.
- Adverse results from any monitoring activity (both continuous and non-continuous) should be investigated by the operator as soon as the monitoring data has been obtained / received. The operator should:-
    - Identify the cause and take corrective action
    - Record as much detail as possible regarding the cause and extent of the problem, and the action taken by the operator to rectify the situation
    - Re-test to demonstrate compliance as soon as possible: and
    - Notify the regulator

Visible and Odorous Emissions

5.13 Visible and odorous emissions should be limited and monitored as follows. Abnormal emissions require action as described in the 'Abnormal events' paragraph below.

- Emissions from combustion processes should in normal operation be free from visible smoke and in any case should not exceed the equivalent of Ringelmann Shade 1 as described In British Standard BS 2742:1969.

- All releases to air, other than condensed water vapour should be free from persistent visible emissions.

- All emissions to air should be free from droplets.

- There should be no offensive odour beyond the site boundary, as perceived by the regulator.

Emissions from Silos

5.14 During silo filling it is most likely that any emissions would be released during the first and last five minutes of the delivery. The first few minutes is when emissions due to leaks or split hoses would first be noticed. The last few minutes is when excess pressure from the tanker/blowing system may cause an emission through the pressure relief valve if the delivery is not controlled correctly. During silo filling procedures isokinetic minitoring of emissions from the arrestment plant is not likely to be possible as the delivery period is so short. For this reason there is no numerical emission limit for such plant. It is important however that the plant is designed to cope with the delivery flow rate that is used for the silo.

- All new or replacement silo filtration plant should be designed to operate to an emission standard of less that 10 mg/m^3 for particulate matter.

5.15 Silo systems require appropriate inspections and assessments to minimise potential for emissions during the filling process. The following measures relating to arrestment plant on silos and other silo management techniques are only applicable where the silo vents to the external environment or where silo emissions may escape from inside a building into the external environment.

- Operators should have a procedure in place to ensure that visual assessment of emissions from silo inlet connections and the silo arrestment plant are undertaken throughout the duration of all bulk deliveries. The start and finish times of all deliveries should be recorded.

- Silo arrestment plant and arrestment plant serving other process operations should be inspected at the frequency specified below.

Inspection of Filtration Plant

Table 5

Filter Cleaning Method	**Frequency of Visual Inspection**
Fitted with reverse jets	At least once a month
Fitted with mechanical shakers	At least once a week
Requiring manual shaking	Daily inspection or prior to any delivery being made if deliveries are not daily.

- The outlet should be checked for signs that emissions have occurred. The equipment should also be checked for defects in the air flow or the cam shakers. If emissions or defects are detected then corrective action should be taken promptly and before another delivery takes place. Any failure of the silo management system (e.g. high level alarms, filter, pressure relief valve) should lead to full investigation of the operation of the plant and equipment.

- Reduced inspection frequency of bag filter (or cartridge) arrestment plant may be appropriate, as follows:-

(a) where pressure drop sensors or other continuous monitors are used to monitor the arrestment plant, such monitors should be inspected according to manufacturers' recommendations to ensure their proper operation

(b) where continuous camera operation enables observation of all emissions points from the arrestment plant and pressure relief valves.

(c) Where the process operation id infrequent.

- Empty bags which have contained carbon black should be placed in a closed container immediately after emptying by a method which minimises the emission of particulate matter.

Abnormal Events

5.16 The regulator needs to be notified about certain events, whether or not there is related monitoring showing an adverse result, and the operator should respond to problems which may have an adverse effect on emissions to air.

- In the case of abnormal emissions, malfunction or breakdown leading to abnormal emissions the operator must:
    - Investigate immediately and undertake corrective action
    - Adjust the process or activity to minimise those emissions; and
    - Promptly record the events and actions taken
- The regulator must be informed without delay:
    - If there is an emission that is likely to have an effect on the local community
    - In the event of the failure of key abatement plant, for example, bio scrubber, thermal oxidiser units.

Particulate Matter Continuous Monitoring Abated Releases

5.17 Where abatement equipment is required to comply with the particulate matter provisions of the note.

- Operations likely to generate particulate matter where the discharge volume flow rate is greater than 50m³ / minute should be continuously monitored to indicate the performance of the abatement plant, by using equipment such as pressure drop indicator.

Continuous Monitoring VOC Abated Releases

5.18 Where continuous monitoring and recording is required to demonstrate compliance with the VOC requirements of the note. For existing VOC abatement equipment surrogate measurements for VOC are acceptable. Where new VOC abatement equipment is installed, or existing VOC abatement equipment is modified, or operating conditions are changed, VOC monitoring should be carried out once more to demonstrate that the surrogate measurements are adequate to ensure compliance.

- Thermal oxidisers must have continuous monitoring and recording for VOC expressed as total carbon excluding particulate matter. After sufficient monitoring data has been collected to clearly demonstrate adequate VOC destruction continuous monitoring of temperature may be used as a surrogate measurement.

- Catalytic oxidisers must have continuous monitoring and recording for VOC expressed as total carbon excluding particulate matter. After sufficient monitoring data has been collected to clearly demonstrate adequate VOC destruction continuous monitoring of carbon monoxide and temperature may be used as a surrogate measurement. (It may be possible to wave the requirement for carbon monoxide monitoring, if the operator can demonstrate to the regulator that the catalytic oxidiser is designed in such a way that it can not exceed the carbon monoxide limit (see Non VOC Emission Limits).

- Bio scrubbers and reactors must have continuous monitoring and recording VOC expressed as total carbon excluding particulate matter. After sufficient monitoring data has been collected to clearly demonstrate adequate VOC destruction continuous monitoring of the flow and pH of the re-circulating water, fan suction, exhaust temperature and pressure drop across the packing, coupled with daily monitoring of the nutrient may be used as a surrogate measurement.

- Turbines, reciprocating engines, boilers or any other form of VOC abatement equipment must have continuous monitoring and recording for VOC expressed as total carbon excluding particulate matter.

5.19 Where continuous monitoring is required, it should be carried out as follows:

- All continuous monitoring readings should be on display to appropriately trained operating staff.

- Instruments should be fitted with audible and visual alarms, situated appropriately to warm the operator of abatement plant failure or malfunction.

- The activation of alarms should be automatically recorded.

- All continuous monitors should be operated, maintained and calibrated (or referenced) in accordance with the manufacturers' instructions. The relevant maintenance and calibration (or referencing) should be recorded, and such records made available for inspection by the regulator.

- All new continuous monitoring equipment should be designed for less than 5% downtime over any 3-month period.

<u>Calibration and Compliance Monitoring</u>

5.20 Calibration and compliance monitoring should meet the following requirements as appropriate.

(i) where the Total Emission Limit Value option is adopted: no results should exceed the emission limits specified, except where either:

(a) data is obtained over at least five sampling hours in increments of 30 minutes or less; or
(b) at least twenty results are obtained where sampling increments of more than 30 minutes are involved.

(ii) where the emission Limits are adopted: no result should exceed the emission limit specified, except where either:

(a) data is obtained over at least five sampling hours in increments of 30 minutes or less, or
(b) at least twenty results are obtained where sampling time increments of more than 30 minutes are involved: AND in the case of (a) or (b)
(c) no daily mean of all 30 minute mean emission concentrations should exceed the specified emission concentration limits during normal operation (excluding start-up and shut-down); and
(d) no 30 minute concentration should exceed twice the specified emission concentration limits during normal operation (excluding start-up and shut-down).

SED Box 10 VOC Monitoring

All activities

For periodic measurements of VOC at least three readings must be obtained during each measurement exercise.

VOC emission limit values shall be considered to be complied with if, in one monitoring exercise:

(a) the average of all the readings does not exceed the emission limit values, and
(b) none of the hourly averages exceeds the emission limit value by more than a factor of 1.5*.

Where continuous monitoring is carried out to demonstrate compliance with VOC emission limits:

(a) none of the averages over 24 hours of normal operation exceeds the emission limit values, and
(b) none of the hourly averages exceeds the emission limit values by more than a factor of 1.5*.

* the hourly average of the 30-minute means value may be used to demonstrate compliance.

Calibration and compliance Monitoring Test Methods

5.21 Calibration and compliance monitoring for all substances should be carried out using methods below or methods which can be demonstrated to be equivalent to those stated.

- Stationary source emissions – Determination of the mass concentration of total gaseous organic carbon in flue gases from organic solvent using processes – Continuous flame ionisation detector method. EN 13526.

- Stationary source emissions – Determination of mass concentration of individual gaseous organic compounds. EN 13649.

- Non-continuous emissions monitoring of particulate matter should be carried out according to the main procedural provisions of BS ISO 9096:2003, with averages taken over operating periods excluding start-up and shutdown.

- Emissions monitoring of nitrogen dioxide should be carried out in accordance with ISO 10849.

- Emissions monitoring of carbon monoxide should be carried out in accordance with ISO 12039.

Varying of Monitoring Frequency

5.21 Where non-continuous quantitative monitoring is required, the frequency may be varied. Where there is consistent compliance with emission limits, regulators may consider reducing the frequency. When determining "consistent compliance" factors to consider include:

(a) the variability of monitoring results, for example, results which range from 15 – 45 mg/Nm^3, against an emission limit of 50 mg/Nm^3 might not qualify for a reduction in monitoring

(b) the margin between the results and the emission limit, for example, results which range from 45 – 50 mg/Nm^3 might not qualify for a reduction in monitoring.

- Consistence compliance should be demonstrated using the results from at least

    - Three or more monitoring exercises within two years; or

    - Two or more monitoring exercises in one year supported by continuous monitoring

- Any significant process changes, which might have affected the monitored emission, should be taken into account

5.22 The frequency of testing should be increased, for example, as part of the commissioning of new or substantially changed activities, or where emission levels are near to or approach the emission concentration limits.

Monitoring of Unabated Releases

5.23 Where emission limit values for VOC are consistently met without the use of abatement equipment, the monitoring requirement for those pollutants should be dispensed with subject to the "Varying of monitoring frequency" paragraphs above.

Sampling Provisions

5.24 Care is needed in the design and location of sampling in order to obtain representative samples.

- The operator should ensure that adequate facilities for sampling are provided on vents or ducts.
- Sampling points on new plant should be designed to comply with the British or equivalent standards.

6. Control Techniques

Summary of Best Available Techniques

6.1 The following table provides a summary of best available techniques that can be used to control the activity or installation in order to meet the emission limits and provisions in Section 5. Provided that it is demonstrated to the satisfaction of the regulator than an equivalent level of control will be achieved, then other techniques may be used.

Table 6: Summary of Control Techniques

Release source	Substance	Control Techniques
Storage and handling of organic solvents and materials containing organic solvents	VOC	Use of materials with a low organic solvent content, or containing low volatility organic solvents
		Use of low volatility organic solvent cleaning solutions
		Use of enclosed mixing and storage vessels
		Siting of storage tanks, Back venting deliveries if needed

		Capture, or capture and disposal or capture and destruction
Handling and storage of dusty materials	Particulate matter	Particulate capture if required
Flue Gas	Sulpur oxides	Limit sulpur in fuel
	Nitrogen Oxides	Low NOx burners
	Carbon monoxide	Good combustion
	VOC	Efficient thermal oxidation

Non VOC Releases Control Techniques

Particulate Matter

6.2 Emissions of particulate matter should be abated if necessary to meet the emission limit.

Silos

6.3 The silo management system includes the high level alarms, arrestment plant and pressure relief valve. If best practice is being applied then any failure of the silo management system leads to full investigation of the operation of the plant and equipment. Continuous high level monitoring systems are currently available for use in storage silos. They may be used telemetrically to monitor stock within the silo. They may be used to automatically stop delivery of material to the silo. It is expected that such systems will become more widely used in the future.

6.4 Careful delivery by trained personnel will avoid materials being blown into silos at a rate which is likely to result in pressurisation of the silo, especially towards the end of the delivery when the quantity of materials entering the ducting is reduced. If deliveries are accepted from tankers without on board relief valve and filtration systems, particular care to avoid pressurisation of silos when venting air through the silo at the end of the delivery is needed.

6.5 The following measures relating to arrestment plant on silos and other silo management techniques are only applicable where the silo vents to the external environment or where silo emissions may escape from inside a building into the external environment.

- All dusty or potentially dusty materials should be stored in silos, in confined storage areas within buildings, or in fully enclosed containers / packaging. Where the storage is open within a building, then suitable precautions should be taken to prevent wind whipping.

- When delivery to a silo or bulk storage tank takes place, displaced air should either be vented to suitable arrestment plant (for example cartridge / bag filters) or back-vented to the delivery tanker, in order to minimise emissions. Arrestment plant fitted to silos should be of sufficient size (and kept clean) to avoid pressurisation during delivery.

- In order that fugitive emissions are minimised during the charging of silos, transfer lines should be securely connected to the silo delivery inlet point and the tanker discharge point, in that order. Tanker drivers should be informed of the correct procedures to be followed.

- Bulk storage tanks and silos containing dry materials should be equipped with audible and/or visual high level alarms, or volume indicator, to warn of overfilling. The correct operation of such alarms should be checked in accordance with manufacturers' instructions. If manufacturers instructions do not specify, then the check should be weekly or before a delivery takes place, whichever is the longer interval.

- If emissions of particulate matter are visible from ducting, pipework, the pressure relief valve or dust arrestment plant during silo filling, the operation should cease; the cause of the problem should be rectified prior to further deliveries taking place. Tanker drivers should be informed of the correct procedure to be followed.

- Seating of pressure relief valves on silos should be checked at least once a week. Or before a delivery takes place, whichever is the longer interval.

- Immediately it appears that the valve has become unseated during silo filling, no further delivery should take place until corrective action has been taken. The pressure relief valve should be examined to check for defects before being re-set and a replacement valve fitted if necessary. Tanker drivers should be informed of the correct procedure to follow.

- Deliveries to silos from road vehicles should only be made using tankers with an on-board (truck mounted) relief valve and filtration system. This means that venting air from the tanker at the end of a delivery will not take place through the silo. Use of alternative techniques may be acceptable provided that they achieve an equivalent level on control with regard to potential for emissions to air.

- Care should be taken to avoid delivering materials to silos at a rate which is likely to result in pressurisation of the silo. If compressed air is being used to blow powder into a silo then particular care is required towards the end of the delivery when the quantity of material entering the ducting is reduced and hence the air flow is increased.

- All new silos should be fitted with an automatic system to cut off delivery in the event of pressurisation or overfilling. Use of alternative techniques may be acceptable provided that they achieve an equivalent level of control with regard to potential for emissions to air.

- Where possible, dusty materials should be replaced by oiled powders or pellets.

- The use of the dusting, supporting and "anti tack" powders should be minimised and emissions produced should be adequately contained. The aim should be to replace dusting powders for example with plastic or textile sheets, compressed lubricant powder in blocks or anti tack liquids, where the process characteristics permit.

- The automatic mechanical discharge of residues collected by particulate matter arrestment equipment should be continuously indicatively monitored to detect blockage. The monitor should be fitted with a visual and audible alarm which should activate in the case of outlet blockage.

Sulphur Dioxide

6.6 In combustion processes the most significant release of sulphur dioxide occurs as a result of the sulphur content of the fuel burnt and should be addresses by using low sulphur fuel as specified in Table 3.

Nitrogen Oxides

6.7 In combustion processes nitrogen oxides can be formed as a result of the combustion of nitrogen in the fuel or the formation of thermal nitrogen oxides from nitrogen in the air used for combustion.

- Where necessary, the nitrogen content of the fuel and other material being burnt should be controlled.

- Where necessary, Low NOx burners should be installed.

VOC Control Techniques

VOC and Odour Control Storage

6.8 Odour may arise from the receipt, handling and storage of organic solvents and organic solvent containing liquids. Careful siting of storage and mixing tanks, particularly in relation to new and replacement tanks, and controlled handling of odorous liquids may help prevent offensive emissions off-site. In addition:

- Bulk storage tanks for organic solvents and organic solvent-containing liquids should wherever practicable be back vented to the delivery tank during filling. Where this is impracticable, displaced air vents should be sited in such a way as to prevent the arising of offensive odour beyond the site boundary.

- All potentially odorous waste materials should be stored in suitable closed containers or bulk storage vessels, where appropriate vented to suitable abatement plant.

6.9 Breathing losses from bulk storage tanks can be minimised by fitting pressure vacuum relief valves. The vapour pressure within the bulk storage can also be minimised by reducing the solar absorbency of the storage tank.

- The exterior of bulk storage tanks for organic solvent storage should normally be light coloured.

- If necessary, emissions from fixed organic solvent storage tanks should be vented to suitable arrestment equipment to meet the emission limits in Section 5.

- All new static bulk organic solvent storage tanks containing organic solvent with a composite vapour pressure that is likely to exceed 0.4kPa at 20°C (293K) should be fitted with pressure vacuum relief valves. Pressure vacuum relief valves should be examined at regular intervals for signs of contamination, incorrect seating and be cleaned and/or corrected as required. The normal minimum examination frequency should be once every six months, but less frequent examination may be justified having regard for the tank contents and the potential emissions as a result of valve failure.

6.10 Both major and minor spillage of organic solvent from bulk storage tanks can arise as a result of a number of scenarios such as: overfilling of tanks, incorrect draining of filling lines, operator error or vandalism.

- Delivery connections to bulk storage tanks should be located within a bunded area.

- Where the operator can not demonstrate to the satisfaction of the regulation that suitable management controls and training with regard to bulk storage deliveries of organic solvents and organic solvent containing materials are in place, along with adequate on-site security, then connections to bulk storage tanks should be fixed and locked when not in use.

- All fixed storage tanks should be fitted with high-level alarms or volume indicators to warn of overfilling. Where practicable the filling systems should be interlocked to the alarm system to prevent overfilling.

- Bunding should
    - Completely surround the bulk liquid storage tanks
    - Be impervious and resistant to the liquids in storage; and
    - Be capable of holding 110% of the capacity of the largest storage tank

<u>VOC Control Handling</u>

6.11 The receipt, handling, use and storage of organic solvents and organic solvent containing liquids will give rise to fugitive releases of VOC.

- Raw materials containing VOC should be stored in closed storage containers.

- All measures should be taken to minimise VOC emissions during mixing i.e. the use of covered or closed mixing vessels.

- Emissions from the emptying of mixing vessels and transfer of materials should be adequately contained, preferably by the use of closed transfer systems. This may be achieved by the use of closed mobile containers, containers with close-fitting lids, or, preferably closed containers with pipeline delivery.

6.12 The use of odour masking agents should not be permitted. The use of counteractants may be permitted, if necessary to meet the requirements of Section 5 of this note.

VOC Control Cleaning

6.13 Cleaning operations will give rise to further releases of VOC.

- Cleaning operations involving organic solvents should be periodically reviewed, normally at least once every two years, to identify opportunities for reducing VOC emissions (e.g. cleaning steps that can be eliminated or alternative cleaning methods). The regulator should be provided with a report on the conclusions of the review.

- Dispensing of cleaning solvents should be:

    - In the case of fixed manufacturing equipment from a contained device or automatic system when applied directly;

    - Dispensed by piston type dispenser or similar contained device, when used on wipes

- When organic solvent is used on wipes:

    - Pre-impregnated wipes should be held within an enclosed container prior to use

    - Where practicable no organic solvent cleaning fluids or significantly less volatile organic solvents cleaning fluids should be used (with or without the addition of mechanical, chemical or thermal enhancements)

- Where practicable, fixed equipment should be in-situ, and such equipment should, where practicable, be kept enclosed whilst cleaning is carried out.

- Where equipment is cleaned off-line, cleaning should be carried out using enclosed cleaning systems, wherever possible. Enclosed cleaning systems should be sealed to prevent emissions whilst in operation, except during purging at the end of the cleaning cycle. If this

is not practicable emissions should be contained and vented to abatement plant where necessary.

VOC Control Operational

6.14 Organic solvent losses can be identified and minimised by operational controls and good operational practise.

- A programme to monitor and record the consumption of organic solvent and organic solvent containing materials against product produced should be used to minimise the amount of excess solvent used.

- Where practicable in relation to the technical characteristics of the process low volatility process or extended oils should be used.

VOC Control Waste

6.15 Waste contaminated with VOC may give rise to both odorous and fugitive emissions.

- All reasonably practicable efforts should be made to minimise the amount of residual organic solvent bearing material left in drums and other containers after use. All organic solvent contaminated waste should be stored in closed containers.

- Prior to disposal, empty drums and containers contaminated with organic solvent should be closed to minimise emissions from residues during storage prior to disposal and labelled, so that all that handle them are aware of their contents and hazardous properties.

- Nominally empty drums or drums containing waste contaminated with VOC awaiting disposal should be stored in accordance with the requirements for full or new containers.

- Prior to disposal used wipes and other items contaminated with organic solvent should be placed in a suitably labelled metal bin fitted with a self-closing lid.

Note: from a health and safety point of view it is advised that bins should be emptied at least daily, as they not only present a fire hazard, they may also undergo spontaneous combustion.

- For materials that may undergo spontaneous combustion special bins that allow air to circulate beneath and around them to aid cooling are advised or other bins specifically designed for this purpose.

General Control Techniques

Dust and Spillage Control

6.16 Adequate provision to contain liquid and solid spillage is needed. Closed containers can prevent wind whipping of dusty, dry waste materials such as materials collected during combustion chamber cleaning or arising from particulate abatement plant:

- Dusty wastes should be stored in closed containers and handled in a manner that avoids emissions
- Dry sweeping of dusty materials should not normally be permitted unless there are environmental or health and safety risks in using alternative techniques
- Suitable organic solvent containment and spillage equipment should be readily available in all organic solvent handling area
- A high standard of housekeeping should be maintained.

Air Quality

Ambient Air Quality Management

6.17 In area where air quality standard or objectives are being breached or are in serious risk of breach and it is clear from the detailed review and assessment work under Local air quality Management that the Part B process itself is a significant contributor to the problem, it may be necessary to impose tighter emission limits. If the air quality standard that is in danger of being exceeded is not an EC Directive requirement, then industry is not expected to go beyond BAT to meet it. Decisions should be taken in the context of a local authority's Local Air quality Management action plan. For example, where a Part B process is only responsible to a very small extent for an air quality problem, the authority should not unduly penalise the operator of the process by requiring disproportionate emissions reductions. More guidance on this is provided in paragraph 360 of the air quality Strategy which gives the following advice:

"The approach from local authorities to tackling air quality should be an integrated one, involving all strands of local activity which impact on air quality and underpinned by a series of principles in which local authorities should aim to secure improvements in the most cost-effective manner, with regard to local environmental needs while avoiding unnecessary regulation. Their approach should seek an appropriate balance between controls on emissions from domestic, industrial and transport sources and draw in a combination and interaction of public, private and voluntary effort".

Revised stack height calculations should not be required unless it is considered necessary because of a breach of serious risk of breach of an EC Directive limit valve and because it is clear from the detailed review and assessment work that the Part B process itself is a significant contributor to the problem.

Dispersion and Dilution from Stack

6.18 Pollutants that are emitted via a stack require sufficient dispersion and dilution in the atmosphere to ensure that they ground at concentrations that are harmless. This is the basis upon which stack heights are calculated using HMIP Technical Guidance Note D1 (D1). The emission limit in this PG note should be used as the basis for chimney height calculation. The stack height so obtained is adjusted to take into account local meteorological data, local topography, nearby emissions and the influence of plant structure. It is necessary that the assessment also take into account the relevant air quality standards that apply for the emitted pollutants.

The calculation procedure of D1 is usually used to calculate the required stack height but alternative dispersion models may be used in agreement with the regulator. D1 relies upon the unimpeded vertical emission and hinders dispersion. For this reason where dispersion is required the efflux velocity and achieve greater dispersion.

An operator may choose to meet tighter emission limits in order to reduce the required stack height.

Stacks, Vents and Process Exhausts

6.19 Liquid condensation on internal surfaces of stack flues and exhaust ducts might lead to corrosion and ductwork failure or to droplet emission.

- Adequate insulation should be provided to minimise the cooling of waste gases and prevent liquid condensation by keeping the temperature of the exhaust gases above the dewpoint.

6.20 Unacceptable emissions of droplets could possible occur from wet abatement plant where the linear velocity within the associated ductwork exceeds 9 m/s. The use of mist eliminators reduces the potential for droplet emissions.

- Where a linear velocity of 9 m/s is exceeded in the ductwork of existing wet abatement plant, the linear velocity should be reduced, subject to health and safety considerations, to ensure that droplet fallout does not occur.

6.21 The dispersion from all stacks and vents can be impaired by low exit velocity at the point of discharge, or deflection of the discharge.

- Stacks and ductwork should be cleaned to prevent accumulation of materials, as part of the routine maintenance programme.

- A minimum discharge velocity should be required in order to prevent the discharge plume being affected by aerodynamic down wash.

- Stacks or vents should not be fitted with any restriction at the final opening such as a plate, cap or cowl, with the exception of a cone which may be necessary to increase the exit velocity of the emissions.

Management

Management Techniques

6.22 Important elements for effective control of emissions include:

  - Proper management, supervision and training for process operations;

  - Proper use of equipment

  - Effective preventative maintenance on all plant and equipment concerned with the control of emissions to the air; and

  - It is good practice to ensure that spares and consumables are available at short notice in order to rectify breakdowns rapidly. This is important with respect to abatement plant and other necessary environmental controls. It is useful to have an audited list of essential items.

- Spares and consumables – in particular, those subject to continual wear – should be held on site or should be available at short notice from guaranteed suppliers, so that plant break downs can be rectified rapidly.

Appropriate Management Systems

6.23 Effective management in central to environmental performance; it is an important component of BAT and of achieving compliance with permit conditions. It requires a commitment to establishing objectives, setting targets, measuring progress and revising the objectives according to results. This includes managing risks under normal operating conditions and in accidents and emergencies. It is therefore desirable that processes put in place some form of structured environmental management system (EMS), whether by adopting published standards (ISO 14001 or the EU Eco Management and Audit Scheme (EMAS) or

by setting up an EMS tailored to the nature and size of the particular process. Operators may also find that an EMS will help identify business saving.

Regulators should use their discretion, in consultation with individual operators, in agreeing the appropriate level of environmental management. Simple systems which ensure that LAPC considerations are taken account of in the day-to-day running of a process may well suffice, especially for small and medium-sized enterprises. While authorities may wish to encourage wider adoption of EMS, it is outside the legal scope of an LAPC authorisation / LAPPC permit to require an EMS for purposes other than LAPC/LAPPC compliance. Fort further information / advice on EMS refer to EMS Additional Information in Section 8.

Training

6.24 Staff at all levels need the necessary training and instruction in their duties relating to control of the process / activity and emissions to air. In order to minimise risk of emissions, particular emphasis should be given to control measures during start-up, shut down and abnormal conditions. Training may often sensibly be addressed in the EMS referred to in paragraph above.

- Training of all staff with responsibility for operating the process / activity should include:
    - Awareness of their responsibilities under the authorisation / permit; in particular how to deal with conditions likely to give rise to VOC emissions, such as in the event of spillage
    - Minimising emissions on start up and shut down
    - Action to minimise emissions during abnormal conditions.
- The operator should maintain a statement of training requirements for each operational post and keep a record of the training received by each person whose action may have an impact on the environment. These documents should be made available to the regulator on request.

6.25 Effective preventative maintenance should be employed on all aspects of the process / activity including all plant, buildings and the equipment concerned with the control of emissions to air. In particular:

- A written maintenance programme should be available to the regulator with respect to pollution control equipment, and
- A record of such maintenance should be made available for inspection by the regulator.

End of Permit