POLLUTION PREVENTION AND CONTROL ACT 1999
POLLUTION PREVENTION AND CONTROL (ENGLAND AND WALES) REGULATIONS 2000

PERMIT OF PROCESS

THIS IS TO CERTIFY THAT the coating of wood, metal and plastic

at: **ARTFORM INTERNATIONAL LTD, BISHOP MEADOW ROAD, LOUGHBOROUGH, LE11 5TH**

National Grid Ref:: **SK523213**
has been duly permitted in accordance with Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 subject to the conditions outlined in this document.

Name of Operator: **ARTFORM INTERNATIONAL LTD**
Registered Office **BISHOP MEADOW ROAD, LOUGHBOROUGH, LEICESTERSHIRE, LE11 5TH**

This Permit shall apply only to the premises occupied by the applicant, as specified and described in the Application for Permit submitted to the Borough of Charnwood. This Permit, consisting of 18 pages, shall be subject to replacement, variation or amendment, as may be considered appropriate by the Borough of Charnwood at any time, according to provisions of Regulations 12, 15, and 17 of the Pollution Prevention and Control (England and Wales) Regulations 2000

The conditions contained herein shall apply from the date of the Permit unless otherwise stated.

Signed on behalf of Charnwood borough Council

Dated……25 July 2006

Beverley Green, Specialist Environmental Health Officer
(the delegated officer for the purpose)

Counter-signed……Ann Green, Specialist Environmental Health Officer

Directorate of Housing and Health, Environmental Health
Southfields, Southfield Road, Loughborough LE11 2TX

ARTFORM INTERNATIONAL LTD, BISHOP MEADOW ROAD, LOUGHBOROUGH LE11 5TH

1.0 Description of Process

1.1 Purpose

The purpose of this process is the coating of wood and to a limited extent, metal and plastic components for use in the manufacture of point of sale display units.

1.2 Plant Detail

The premises are situated on Bishop Meadow Road, Loughborough as shown on Plan Ref. 1/081.

Wet spray application of the components is achieved using two plants.

1.2.1 Plant B

Plant B (marked on plan ref 02/081) consists of two Binks dry filter spray booths. These booths are designed to comply with the Pollution Prevention and Control Act 1999 emission requirements. Emissions of particulates are guaranteed to be less than 50mg/ m^3.

Each booth measures 2310mm x 2745mm x 2310mm and has an air velocity of 0.7m/sec and is used in conjunction with HVLP spray guns.

1.2.2 Plant C

Plant C (marked on plan ref 02/081) is a sample booth. It is a dryback booth with 'Andreae HEF' plus cardboard with media backing. The unit measures length 2800mm, width 2200mm, height 2200mm, and has an air efflux velocity of 0.75m/s.
The application equipment is Devilbis GTI (HVLP).

No designated risk phrase materials with risk phrases R40, R45, R46, R49, R60 and R61 are used at the installation.

1.3 Process Operation

1.3.1 Plant B

These booths are used mainly to spray larger wooden carcasses. The product is placed onto a wheeled board and manoeuvred into the booth. Paint is applied via 2 x Devilbliss HVLP guns. Finished items are left to dry in a flash-off area.

1.3.2 Plant C

This booth is used for carrying out sample work and small volume component spraying.

2.0 Non-VOC Emissions

2.1 The following non-VOC emission limit shall apply.

Substance	Source	Emissions Limit	Monitoring Frequency	Monitoring Method
Particulate matter	All process activities	50mg/Nm^3 as 30 minute mean for contained sources	Annual	Manual extractive testing. See paragraphs 5.23,5.24,5.25 and 5.26 of PG6/33
Isocyantes	All process/activities using isocyantes	0.1mg/Nm^3 as 30 minute mean for contained sources excluding particulate and expressed as NCO	Annual	Manual extractive testing. See paragraphs 5.23,5.24,5.25 and 5.26 of PG6/33

2.2 All pollutant concentrations shall be expressed at reference condition 273k, 101.3kpa without correction for water vapour content.

2.3 Calibration and compliance monitoring shall meet the following requirements as appropriate.

No result shall exceed the emission concentration limit specified in the above table except where either: -

a) Data is obtained over at least 5 sampling hours in increments of 30 minutes or less, or
b) At least 20 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 minutes mean emissions concentrations shall exceed the specified emission concentration limits during normal operation (excluding start-up and shut-down)

And

d) No 30 minute mean emissions concentration shall exceed twice the specified emissions concentration limits during normal operations (excluding start-up and shut-down)

2.4 The introduction of dilution air to achieve the emissions concentration limits specified in condition 2.1 above, shall not be permitted.

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

2.6 Adequate facilities for sampling shall be provided on vents and ducts and the sampling points shall be designed to comply with British or equivalent standards.

2.7 Exhaust flow rates shall be consistent with efficient capture of emissions, good operating practice and meeting the requirements of the legislation relating to the workplace environment.

3.0 VOC Emissions

3.1 In order to reduce VOC emissions from the installation, two compliance options are available, these are:

i) use of compliant coatings,

ii) implementation of a solvent reduction scheme to reduce emissions from the installation to a Target Emission,

You have indicated that your compliance option is the solvent reduction scheme.

Reduction Scheme

3.2 The company shall therefore submit to Environmental Protection at Charnwood Borough Council, no later than 1 April 2007, an emission reduction plan for the site. The plan shall include 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.

3.3 The Target Emission shall be calculated as follows:

a) Total mass of solids in the quantity of coatings consumed in the activity in the inventory period (12 months).

b) The target emission over the same period is equal to: -

the result of paragraph (a) x 1.6

3.4 Compliance with the reduction scheme is achieved if the annual actual solvent emission is less than or equal to the target emission. Where the annual actual solvent emission is:

Actual solvent emission = $I_1 - O_6 - O_7 - O_8$

This Target emission to be achieved by 1 April 2007

(For further information, together with a spreadsheet to help record the data collected, see AQ 30(04) "Determination of compliance with Reduction Scheme" available on the Defra web site at): -

http://www.defra.gov.uk/environment/airquality/lapc/aqnotes/index.htm

3.5 The assessment of compliance using the solvent reduction scheme shall be undertaken a year in arrears. Any proposal, which would introduce a conventional high solvent coating system or replace a low or no solvent coating system or introduce a high solvent product into a process where it was not in use before, shall be approved by the local authority prior to installation.

Determination of Solvent Consumption

3.6 A determination of the organic solvent consumption of the installation shall be made and submitted to Environmental Protection at Charnwood Borough Council annually, preferably to coincide with stocktaking requirements. To this end all items relating to the coating process which contain solvent shall have their details recorded in a solvent log. The solvent log shall also indicate the solvent content in kg/litre. Solvent consumption shall then be determined by the total mass of organic solvent inputs minus any solvents sent for reuse/recovery off-site.

Where: $C = I_1 - O_8$

I_1 Is the quantity of organic solvents, or their quantity in 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).

A calculation of the purchased organic solvent Input ($\mathbf{I}_1$) to the process/activity, is carried out by recording:

(I) The mass of organic solvent contained in coatings, diluents and cleaners in the initial stock (IS) at the start of the accounting period; plus

(ii) The mass of organic solvent contained in coatings, diluents and cleaners in the purchased stock (PS) during the accounting period.

(iii) Minus the mass of organic solvent contained in coatings, diluents and cleaners in the final stock (FS) at the end of the accounting period.

Total Organic Solvent Input ($\mathbf{I}_1$) = IS + PS – FS

Solvent Management Plan

3.7 A solvent management plan (SMP) shall be produced to determine the actual emissions annually;

The SMP shall be prepared using the standard definitions and calculations in PG6/33 (04) figure 5.1 .

A summary of these calculations is given below:-

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

I_1 Is the quantity of organic solvents, or their quantity in 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).

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

O_6 Is Organic solvent contained in collected waste

O_7 Is Organic solvent contained in preparations, which are sold or are intended to be sold as commercially valuable product.

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

3.8 The Solvent Management Plan shall be used to design and implement a programme to monitor and record the consumption of coatings/organic solvents used, against product produced. Using this information opportunities for reducing solvent usage should be identified, assessed and where appropriate implemented.

4.0 Monitoring, investigation and recording

4.1 The results of all periodic monitoring and inspections shall be recorded in a log book. The log book should be retained by the operator for a period of two years and made available for examination by the local enforcing authority. Adverse results shall be investigated immediately and in all cases shall be recorded in the log book. The operator shall ensure that the cause has been identified and corrective action taken, and this action is recorded in the log book.

4.2 The results of all non-continuous emission testing shall be forwarded to Environmental Protection at Charnwood Borough Council within 8 weeks of the completion of sampling.

4.3 The local enforcing authority shall be advised at least 7 days in advance of any periodic monitoring exercise to determine compliance with emission limit values of the provisional time and date of monitoring, pollutants to be tested and the methods to be used.

4.4 The reference test method for non- continuous particulate monitoring of emissions in chimneys or ducts is that of British Standard BS. ISO 9096:2003. Tests shall be carried out to the main procedural requirements of the standard.

4.5 In the event of any adverse results from any monitoring activity in relation to the limits specified in condition 2.1 the Operator shall investigate as soon as the results are obtained/received. The Operator shall:

- Identify the cause and take corrective action
- Record as much detail as possible regarding the cause and extent of the problem
- Record the action taken by the Operator to rectify the situation
- Re-test to demonstrate compliance as soon as possible and
- Notify the Regulator.

4.6 In the case of abnormal emissions, or malfunctions or breakdown leading to abnormal emissions the Operator shall:

- Investigate immediately and undertake corrective action
- Adjust the process or activity to minimise those emissions and
- Promptly record the events and actions taken

- Notify the Regulator without delay, if the emission is likely to have an effect on the local community.

4.7 All emissions to air, other than steam or water vapour, shall be colourless and free from persistent mist.

4.8 All emissions to air shall be free from persistent fume and free from droplets.

4.9 All emissions shall be free from offensive odour outside the process boundary.

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

5.0 Process Controls

VOC Control – handling and storage

5.1 All paint spraying operations shall be carried out in one of the three spray booths to prevent fugitive emissions of odour and particulate matter.

5.2 The receipt, handling and storage of organic solvents shall be carried out so as to minimise the emission of volatile organic compounds to air.

5.3 All vessels or containers containing materials with an organic solvent content shall be lidded or enclosed when not in use.

5.4 All mixing, emptying and transfer of coatings or raw materials containing VOC's shall be undertaken in covered or closed mixing vessels, except for small tins (e.g. 25 litres) mixed by hand.

VOC Control – cleaning (including surface cleaning)

5.5 The operator shall periodically review (at least once every 2 years) cleaning operations at the installation to identify opportunities for reducing VOC emissions. The results of this review, justification for the choices made together with timescales to implement any changes identified, shall be submitted to the Local Authority.

5.6 The cleaning of plant and equipment shall be carried out in such a way that emissions of volatile organic compounds to air are prevented or controlled.

5.7 HVLP guns and application equipment shall be cleaned in a cold cleaning system which is lidded and provided with a solvent collection container to prevent the emission of volatile organic compounds in the air

5.8 Cleaning techniques such as water based (without mechanical, chemical or thermal enhancement) or organic solvents which are significantly less volatile should be used wherever practicable.

5.9 Where fixed equipment is cleaned *in situ*, it should be kept enclosed during the cleaning operation.

5.10 Where equipment is cleaned off-line, it should be cleaned in enclosed cleaning machines wherever possible. Enclosed cleaning systems should be sealed to prevent emissions whilst in operation, except purging at the end of the cleaning cycle. If this is not practicable, emissions

should be contained and vented to suitable arrestment equipment to meet the requirements of 4.9 above.

5.11 Where manual cleaning is unavoidable:-

i) Cleaning solvents should be kept in enclosed containers whilst not in active use.
ii) Wiping cloths or brushes should be either pre-impregnated or, using a dispenser or similar device, be impregnated with cleaning solvent in a controlled manner.
iii) Used wiping cloths or brushes should be stored in enclosed containers pending recovery or disposal.

VOC Control – Operational

5.12 Devise and implement a programme to monitor and record the consumption of coatings/organic solvents against product produced, to identify ways of minimising the use of organic solvent/coatings.

5.13 Emissions from all coating application areas shall be adequately contained by local exhaust ventilation.

5.14 Emissions from flash-off areas shall be adequately contained by local exhaust ventilation.

5.15 All ductwork and ancillary equipment shall, as far as possible, be made and maintained in a condition to prevent leakage of waste gases to air. An annual visual inspection of all ductwork will be carried out for the purposes of complying with this condition.

VOC Control-Waste

5.16 All potentially odorous waste materials shall be stored in suitable enclosed containers to meet the requirement of condition 4.9 of this Permit.

5.17 Prior to disposal empty containers and drums shall be closed to minimise emissions. These containers shall be labelled, so that all that handle them are aware of their contents and hazardous properties.

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

VOC Control – Dust and Spillage Control

5.19 A supply of absorbent material shall be held on site for use in the event of spillage of organic solvents. Such spillages shall be cleaned up immediately and the collected material shall be held in an enclosed container pending removal from site.

5.20 All arisings of dry dusty materials shall be stored in closed containers and handled in a manner that avoids emissions.

6.0 Metal Degreasing and Cleaning

6.1 No cleaning or degreasing shall be undertaken by immersing components or products in a tank containing solvent. All components requiring pre-treatment by immersion shall be prepared using water-based treatments.

7.0 Chimneys, Vents and Process Exhausts

7.1 The process stack heights, as measured above roof ridge height are as follows:-

Plant	Stack	Height (m)
B	3	2m
B	4	2m
C	5	1.5m
Positions are shown on plan 3/081		

7.2 Process stacks shall normally be designed for an efflux velocity of not less than 15m/sec at normal load operation.

7.3 Chimney flues and ductwork leading to the chimney shall be adequately insulated to minimise the cooling of waste gases and prevent liquid condensation on internal surface.

7.4 Chimneys, flues and ductwork shall be inspected and cleaned as necessary to prevent accumulation of materials.

7.5 Process stacks shall not be fitted with any restriction at the final opening such as a plate, cap or cowl. However, a cowl fitted at the chimney exit to increase efflux velocity is permitted. All discharge points should be vertically upwards.

8.0 Management

8.1 A written management plan or contingency arrangements shall be maintained in order to deal with plant failure, emergency or breakdown which would have an effect on emissions to atmosphere.

8.2 A high standard of housekeeping shall be maintained.

8.3 Essential spares and consumables, particularly those subject to continual wear, shall be held on site when the supplier is not able to provide items from stock within one working day, so that spray booth breakdowns can be rectified rapidly.

8.4 Staff at all levels shall receive the necessary formal training and instructions in their duties relating to control of the process and emissions to air. Particular emphasis shall be given to;

- Awareness of their responsibilities under this permit in dealing with conditions likely to give rise to VOC emissions, such as in the event of spillage;
- Minimising emission on start up and shut down
- Action to minimise emissions during abnormal conditions

8.5 A statement of training requirements for each operational post and a training record shall be kept for each person whose actions may have an impact on the environment. These documents shall be kept available for inspection by representatives from Charnwood Borough Council.

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

- A Written maintenance, inspection and replacement programme for all aspects of the process shall be prepared, implemented and maintained and it shall be made available for inspection by representatives from Charnwood Borough Council.
- A written record of all maintenance carried out shall be made available for the inspection by the regulator.

8.7 The activity shall operate in accordance with an effective management system. This shall include a commitment to achieving compliance with the permit conditions and ensuring LAPC considerations are taken account of in the day-to-day running of the process. It may include establish objective for improved environmental performance by setting targets, measuring

progress and revising the objective according to results. The system shall include managing risks under normal operating conditions and in accidents and emergency situations.

8.8 At all times of operating the operation shall have regard to the guidance given in the Secretary's of State's Guidance Notes

a) Wood Coating Process PG6/33(04) and Coating of Metal and Plastic PG6/23(04)

EXPLANATORY NOTES

These notes do not comprise part of Permit Serial No.081 but contain guidance relevant to the Permit.

1. You should note that Regulation 12(10) of the Regulations provides that in relation to any aspect of the process not regulated by conditions 2.1 to 8.8 the best available techniques ('BAT') shall be used for the purpose of preventing or, where that is not practicable, reducing emissions into the air.

   Section 3(7) of the Regulations describes 'BAT' as meaning the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as a whole.

2. This Permit is issued under the Pollution Prevention and Control (England and Wales) Regulations 2000. The responsibility you have under legislation for Health, Safety and Welfare in the workplace remains in force. In addition, the Permit does not relieve you of your obligations to obtain planning permission, hazardous substances consent, discharge consent from the Environment Agency Building Regulations approval, or a Waste Disposal Licence.

3. Any proposed 'change in operation' in the process (within the meaning of Regulation 2(1)) shall be notified to Charnwood Borough Council as required by Section 16(1) of the Regulations.