



POLLUTION PREVENTION AND CONTROL ACT 1999
 ENVIRONMENTAL PERMITTING (ENGLAND AND WALES) REGULATIONS 2007

PERMIT OF PROCESS

THIS IS TO CERTIFY THAT THE NON-FERROUS METAL FOUNDRY PROCESS

at: **John Taylors & Co, Bell Foundry, Freehold Street, Loughborough LE11 1AR**

National Grid Ref: SK 5415 1980 (Plan No.1/020)

has been duly permitted in accordance with Regulation 13(1) of the Environmental Permitting (England and Wales) Regulations 2007 subject to the conditions outlined in this document.

Name of Operator: John Taylor & Co.
Registered Office: The John Taylor Bell Foundry, Freehold Street, Loughborough, Leicestershire
 LE11 1AR

This Permit shall apply only to the premises occupied by the applicant, as specified and described in the Application for Permit submitted to Charnwood Borough Council. This Permit, consisting of fifteen pages, shall be subject to replacement, variation or amendment, as may be considered appropriate by Charnwood Borough Council at any time, according to provisions of Regulations, 18, 20, and 34 of the Environmental Permitting (England and Wales) Regulations 2007.

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

Signed on behalf of Charnwood Borough Council

.....
 Ann Green. Specialist Environmental Health Officer
 (the delegated officer for the purpose)

Dated 9 March 2010

Counter-signed.....

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

Introductory note

This introductory note does not form a part of the permit

The following Permit is issued under Regulation 13(1) of the Environmental Permitting (England and Wales) Regulations 2007 (S.I 2007/ 3538), as amended, (“the EP Regulations”) to operate an installation carrying out one or more of the activities listed in Part 2 of Schedule I of the EP Regulations, to the extent authorised by the Permit:

Section 2.2 – Non- Ferrous Metals

"Any process involving

- a. Melting, including making alloys, of non-ferrous metals (other than tin) including recovered products (refining,foundary casting etc) in plant with a melting capacity of 4 tonnes or less per day for lead or cadmium or 20 tonnes or less per day for all other metals
- b. The heating in a furnace or any other appliance of any non-ferrous metal or non-ferrous metal alloy for the purpose of removing grease, oil or any other non-metallic contaminant
- c. Melting zinc or a zinc alloy in conjunction with a galvanising activity at a rate of 20 tonnes or less per day
- d. Melting zinc, aluminium or magnesium or an alloy of one or more of these metals in conjunction with a die-casting activity at a rate of 20 tonnes or less per day
- e. The separation of copper, aluminium, magnesium or zinc from mixed scrap by differential melting”.

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 some Waste Disposal Licences.

Note that the Permit requires the submission of certain information to the Local Authority (LA). In addition, the LA has the power to seek further information at any time under Regulation 60(2) EP Regulations provided that it acts reasonably.

Public Registers

Considerable information relating to Permits including the Application is available on public registers in accordance with Requirement 46(1) EP Regulations. Certain

PERMIT 020

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 LA 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

Where the Operator intends to cease the operation of an installation (in whole or in part) The LA should be informed in writing, such notification must include the information specified in Regulation 24 or Regulation 25 and Part 1 of Schedule 5 of the EP Regulations.

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 LA 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.

Talking to us

Please quote the Permit Number if you contact Charnwood Borough Council about this Permit. To give a Notification under Conditions 7, 13 & 14 the Operator should use the telephone number 01509 634636 or any other number notified in writing to the Operator by Charnwood Borough Council for that purpose.

Status Log

Detail	Date	Comment
Permit issued	21 October 1993	
Variation Notice	21 March 2001	Consolidated permit
Variation Notice	5 January 2006	Consolidated Permit
Variation Notice	9 March 2010	Consolidated Permit

PERMIT 020

Process Description**Purpose of the Permitted Process**

The process involves the melting and casting of bell metal in order to manufacture bronze church bells and hand bells.

Some melting of ferrous metals also takes place to enable casting of headstocks. Based on the guidance in AQ5(92), the impact of this activity is considered trivial. The triviality status of the ferrous melting must be kept under review, given changes in operational activity or national guidance. Any activities involving ferrous melting and casting on the site are subject to the condition of this Permit.

Plant Detail

The premises are located on the corner of Freehold Street and Cobden Street, Loughborough (See figure 1/20). Metal melting and bell casting is undertaken within the main foundry building (figure 2/20). Small clock and handbells are cast in the small casing workshop (figure 2/20).

The main plant and their respective emissions points are as follows:-

Table 1.

PLANT	EMISSION POINT
Morganite 500 tilting furnace	Fume and combustion products are discharged into the workspace and then to atmosphere via a louvred gable at the roof ridge
2.1/2 ton morganite tilting furnace	Fume and combustion products are discharged into the workspace and then to atmosphere via a louvred gable at the roof ridge
3/4 ton morganite tilting furnace	Fume and combustion products are discharged into the workspace and then to atmosphere via a louvred gable at the roof ridge
100 lb morganite lift-out furnace in small casting workshop	Emissions discharge at roof ridge level via a local hood canopy and stack.
Core and cast bake oven	Fuel combustion products are discharged to atmosphere via a brick stack serving the oven.

All emissions are discharged to atmosphere by passive ventilation.

PERMIT 020

All furnaces and the oven are fuelled by gas oil.

The operation of the reverberatory furnace does not fall within the remit of this Permit. If the furnace is to be brought back into use then prior consent must be sought from both Charnwood Borough Council and the Environment Agency.

Plant Operation

Raw materials are ingots of bell metal (typically 77% copper, 22% tin, 1% other metal elements), reclaimed clean grey iron, high clay content resin bonded sand, chopped hay, horse manure, water, bricks and coke.

Church Bell Manufacture

A loam is produced by mixing sand, hay, manure and water. The inner core of the bell is formed from bricks, coke and loam. The outer case of the bell is formed from loam. The core and case is baked in the oven at 100°C to 150°C to dry and form the bell pattern.

The core and case are bolted together and buried in the sand floor of the foundry onto a bed of coke. Bronze ingots are melted in the furnaces, a willow pole is used to remove gaseous contaminants. Dross is skimmed off the surface of the molten metal and stored in bags within the building.

Metal is poured into the pattern through a reservoir at the head of the case. Fume and combustion products from the casting operation is vented out of the sand floor via a vent pipe at the top of which is a burning cotton rag.

After cooling, the case is removed and the core dug out. Materials from the case and core are stored for re-use. Any sand, manure and hay that is not re-used is stored in a skip within the foundry.

Hand Bell Manufacture

Moulds for hand bells are formed from green sand and are created from 3 sections in moulding boxes. Bronze ingots are melted into the lift-out furnace. Molten metal is poured directly into the moulds from a lift-out crucible. Following the casting the moulds are then taken apart and the sand returned for future use.

Excess metal from casting operations are removed and re-used. Manufactured and repaired bells are subject to some fettling and finishing in the workshops (figure 2/20). None of these operations produce emissions to atmosphere.

Headstock Manufacture

Typically, approximately 250kg of iron is melted each week for headstock casts, often in one or two batches. Scrap iron is cleaned or degreased before melting .

No lead is melted and no fluxes or degassing agents are added.

End of Introductory Note.

PERMIT 020

John Taylor & Co, Bell Foundry, Freehold Street, Loughborough

The above named company is permitted to operate the activities and /or associated activities as specified in table 2 below: -

Table 2		
Activities listed in Schedule I of EP Regulations/associated activity	Description of specified activity	Limits of specified activity
Section 2.2 Part B.	Non-Ferrous Metals Activities	From the receipt of raw materials onto the site to the dispatch of finished products and handling storage and removal of waste.

Subject to compliance with the following conditions:

Permit Conditions

Standard Conditions

1. If the operator proposes to make a change in operation of the installation he shall, at least 14 days before making the change, notify Charnwood Borough Council in writing. The notification must contain a description of the proposed change in operation. It is not necessary to make such a notification if an application to vary this permit has been made and the application contains a description of the proposed change. In this condition 'change of operation' means a change in the nature or functioning, or an extension, of the installation, which may have consequences for the environment.
2. The best available techniques shall be used to prevent or, where that is not practicable, reduce emissions from the installation which is not regulated by any other condition of this permit

Emission Limits and Controls

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

PERMIT 020

fume and droplets. In the case of all emissions, this condition relates to the emission points described in Table I. above.

4. All emissions shall be free from offensive odour outside the process boundary as perceived by an authorised officer of Charnwood Borough Council.
5. Emissions from all combustion processes (excluding casting fume) shall be free from visible smoke and in any case shall not exceed the equivalent of Ringelman Shade I, as described in the British Standard BS2742.1969.
6. Where emissions monitoring is required, emissions shall not exceed the following limits expressed as the maximum permissible 15-minute averages:

POLUTANT	CONCENTRATION
Total Particular Matter	20mg/m ³
Copper and its compounds (as copper)	20mg/m ³
Lead and its components (as lead)	2mg/m ³
Nickel and its compounds (as nickel)	5mg/m ³
Tin and its compounds (as tin)	5mg/m ³
Fluoride and its compounds (as fluoride)	5mg/m ³

Emissions monitoring shall only be required in the event of confirmed breaches of Conditions 3 or 4 above and only after a written instruction to carry out such monitoring has been issued by an authorised officer of Charnwood Borough Council.

Compliance with the emission limits for lead, nickel and fluoride are permitted to be demonstrated using other indicative data including metal content analysis.

Emissions monitoring will be required where metal alloys other than tin bronze is melted or otherwise processed in furnaces unless the total mass of such metals are less than 2% of the tin bronze melted on the site per annum. This shall only be required following a written instruction by an authorised officer of Charnwood Borough Council.

7. Where emissions monitoring is required Charnwood Borough Council shall be informed at least 7 days in advance of the monitoring exercise. This notification shall include information about the pollutants to be monitored and details of the methods and test standards to be followed.
8. All emissions monitoring exercise shall be expressed at reference conditions 273K and 101.3Kpa, without correction for water vapour content.

PERMIT 020

9. The results of all periodic emissions monitoring exercises shall be forwarded to Charnwood Borough Council within 8 weeks of their completion. The results shall be accompanied by sufficient background information to allow the local authority inspector to assess the compliance of the monitoring exercise against the test standard followed.

Monitoring, Sampling and Measurement of Emissions

10. Historically, metal casting has not caused complaints or visible emissions from the foundry. A visual and olfactory assessment of emissions must be made on any occasion which a casting operation is undertaken which the operator considers may lead to unusual emissions. Examples of such occasions would be if there are any changes to raw materials or concern about scrap iron cleanliness.
11. Any adverse results must be recorded in the log book required by condition 12.
12. The results of all monitoring and inspections shall be recorded in a log book which shall be retained by the operator for a minimum of 4 years and made available for examination by an authorised officer of Charnwood Borough Council.

Abnormal events

13. In the event of any adverse results, malfunctions or breakdown leading to abnormal emissions the Operator shall:
- Investigate to identify the cause and take corrective action immediately
 - Record (in the log book) as much detail as possible regarding the cause and extent of the problems
 - Record the action taken by the Operator to rectify the situation
 - Adjust the process or activity to minimise those emissions and
 - Notify Charnwood Borough Council.
14. Charnwood Borough Council shall be informed immediately by telephone where:
- the emission is likely to have an effect on the local community or
 - In the event of the failure of key abatement plant, for example, bag filtration plant or scrubber units.
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PERMIT 020

15. The operator shall provide a list of key arrestment plant and shall have a written procedure for dealing with its failure, in order to minimise any adverse effects.

Materials Handling

16. Stocks of dusty or potentially dusty materials shall be stored in manner that prevents wind whipping. Coke, sand and hay shall either be stored internally or in sealed bags externally.
17. Any processes likely to emit into the air any particulate matter shall be undertaken within either the foundry or the workshops. Such processes include casting and knocking out, oxy fuel cutting and fettling.
18. All residues produced from the process shall be stored in such a manner to prevent wind whipping. Waste loam, sand, dross, coke and any other friable material shall either be stored internally or externally in sealed bags or a covered skip.
19. Records of the scrap iron used for ferrous melting shall be retained by the operator. For each batch of ferrous metal melted a record shall be kept of:-
- i) The quantity of iron used.
 - ii) A brief description of the type of scrap iron used.
 - iii) A brief description of any potential contamination in the scrap such as paint residue, oil or grease, and the measures taken to remove the contaminants

General Control Techniques

20. Baking of moulds and cores shall only be carried out in the bake oven in the foundry. Only low sulphur contents fuels (below 1% content by mass) shall be used to fire the oven. Routine inspections of emissions from the process shall include assessment of emissions from the bake oven.
21. The temperature of molten alloy in the furnace shall be monitored prior to each casting to ensure that it is within a range appropriate to minimise emissions of substances into the air. The temperature shall not exceed 1100°C.
22. Combustion plant associated with the process shall be maintained and operated in a way which minimises any smoke emissions at the start-up or operation of relevant plant.

Air Quality**Dispersion and dilution from stacks**

23. The appropriate heights of the respective discharge points are as follows:-
- i.) Roof ridge louvers approximately 11m.
 - ii.) 300mm diameter stack serving 100lb furnace approximately 8.5m
 - iii.) Baking oven stack approximately 12m

The heights of these stacks shall not be varied without prior consent of Charnwood Borough Council.

24. The chimneys serving the 100lb furnace and the baking oven shall not be fitted with any restriction at the final opening, such as a plate, cap or cowl.
25. The ductwork serving all of the discharge points shall be adequately maintained in order to ensure that emissions are discharged to atmosphere in a manner that maximises dispersion. Ductwork must be intact in order to prevent leakage and kept clear of blockages or accumulations that will interfere with gas flow.
- a. Chimney heights and discharge arrangements are based on historical provision. These arrangements shall be reviewed in the event of relevant complaints to take into account guidance contained in HMIP technical guidance note DI or any other appropriate guidance.

Dust and spillage control

26. External surfaces of the process building, ancillary plant and open yards and storage areas must be regularly cleaned whenever a build-up of matter is noted to prevent the accumulation of dusty material in circumstances where the dust may be come wind-entrained. Particular attention should be paid to roofs, gutterings, roadways, external storage areas and yards. Cleaning operations must be carried out by methods which minimise emissions of particulate matter to air, for example, by vacuum cleaning, wet cleaning or other appropriate techniques.
27. All other areas where there is regular movement of vehicles shall be kept clean, in order to prevent or minimise dust generation.

Management**Training**

28. Staff at all levels shall receive the necessary formal training and instruction in their duties relating to control of the process and emissions to air. Particular emphasis shall be given to;
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PERMIT 020

- Awareness of their responsibilities under this permit , how to control emissions by the use of operational controls such as furnace temperature controls and careful additions of flux,
 - Minimising emission on start up and shut down
 - Action to minimise emissions during abnormal conditions
29. 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 an Authorised Officer from Charnwood Borough Council.

Management Techniques

30. 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 Authorised Officers from Charnwood Borough Council.
 - A written record of all maintenance carried out shall be made available for the inspection by Authorised Officers from Charnwood Borough Council.
31. 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.

Appropriate Management Systems

32. The activity shall operate in accordance with an effective management system which has been certified to the International Environment Management Standard ISO14001: 2004. 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 establishing objectives for improved environmental performance by setting targets, measuring progress and revising the objectives according to results. The system shall include managing

risks under normal operating conditions and in accident and emergency situations.

End of Conditions

Site Location Plan (Figure 01/020)

Site layout Plan (figure 2/20)

EXPLANATORY NOTES

This note does not comprise part of Permit Reference No. 020 but contains guidance for Operators receiving a permit.

1. Anyone who is aggrieved by the conditions attached to a Permit can appeal to the Secretary of State. Appeals must be sent within 6 months from the date of the permit (normally the date on the bottom of the permit).
2. Appeals must be made in accordance with the requirements of Regulation 31 and Schedule 6 of the EP Regulations and should be addressed as follows:

The Planning Inspectorate
Environment Team, Major and Specialist Casework
Room 4/04 Kite Wing
Temple Quay House,
2 The Square,
Temple Quay,
Bristol, BS1 6PN

3. An appeal brought under Regulation 31(b)(1) 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.
4. There are no forms or charges for appealing. However for an appeal to be valid, appellants are legally required to provide information as detailed in paragraphs 2(1) and (2) of Schedule 6 of the EP Regulations., namely:
 - I. A statement of the grounds of appeal
 - II. A copy of any relevant permit
 - III. A copy of any relevant correspondence between the appellant and the regulator
 - IV. A statement indicating whether the appellant wishes the appeal to be in the form of a hearing or dealt with by way of written representations.At the same time, the notice of appeal and documents (I) and (IV) must be sent to the Council.
5. In determining an appeal against one or more conditions, the Regulations allow the Inspector or Secretary of State to affirm or quash conditions or to add new conditions.