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Technical Application

Part A2 Permit Application, October 2023
Issue 1.0

ehrc

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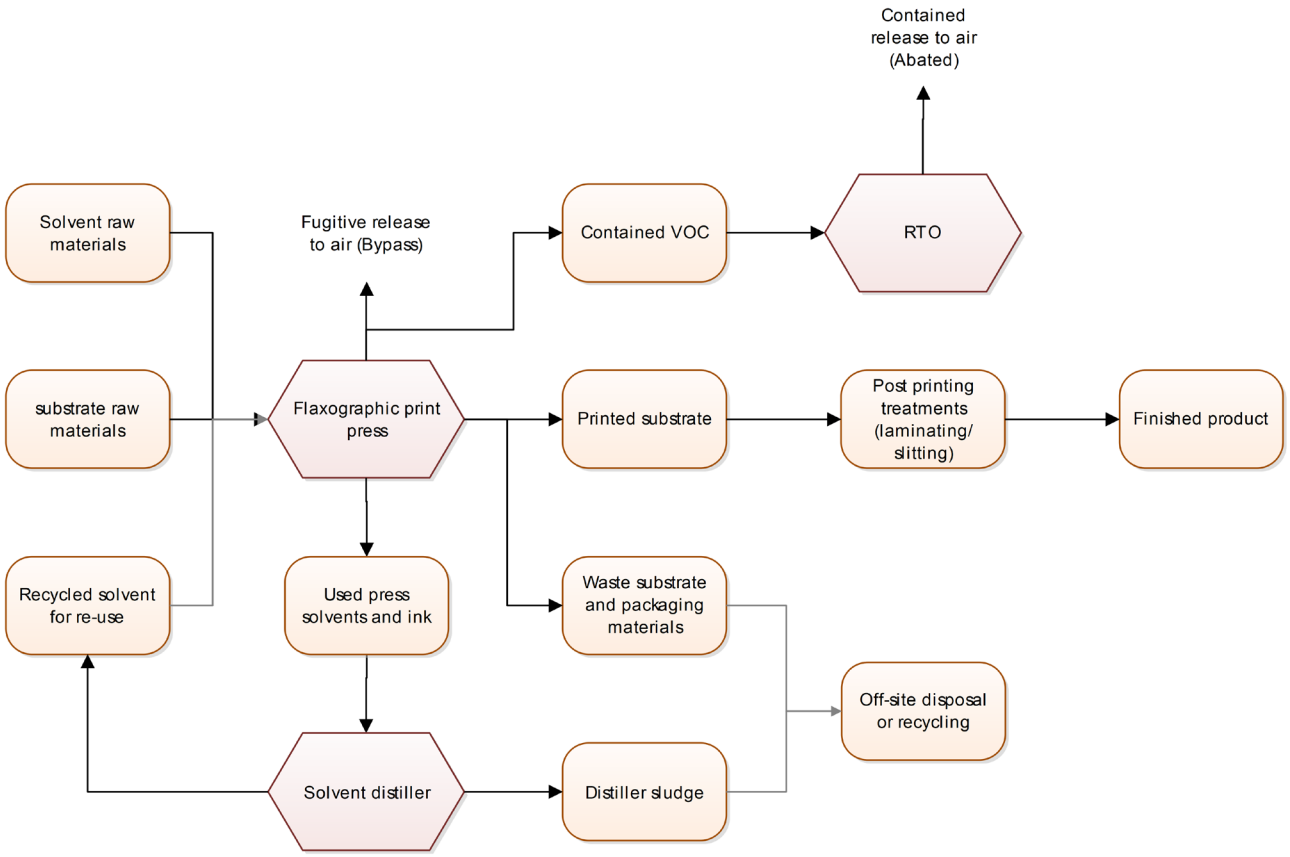
Introduction

This technical application describes the key technical components of the proposed activity in the format of the sections in the Part A2 Permit application form. It is in addition to the 'Non-technical summary' and a full detailed assessment of Best Available Techniques (BAT Assessment).

1.0 How the installation will operate

The Operator proposes to operate a flexographic prating activity, specialising in the printing of a variety of flexible packaging. The installation will initially comprise two flexographic printing presses (with scope for a third) with solvent emissions abated via a three-tower regenerative thermal oxidiser. Solvents will be recycled for internal re-use via a distillation unit. Printed products will pass through post printing techniques as required by product specification, including laminating and slitting.

The overall process flow is as follows:



1.1 Technical description: Printing activity

Printing will exclusively be flexographic, initially comprising two Comexi F2 presses (with scope for a third). Press serial numbers will be supplied on installation.

Figure 1: Comexi F2 flexographic printing press

In flexography, the desired imagery or lettering is engraved onto a flexible photopolymer plate and liquid ink is transferred from an ink tray by the fountain cylinder. The fountain cylinder in turn transfers the ink to a second roller, known as the anilox roller, which is a type of meter or metering roller (figure 2).

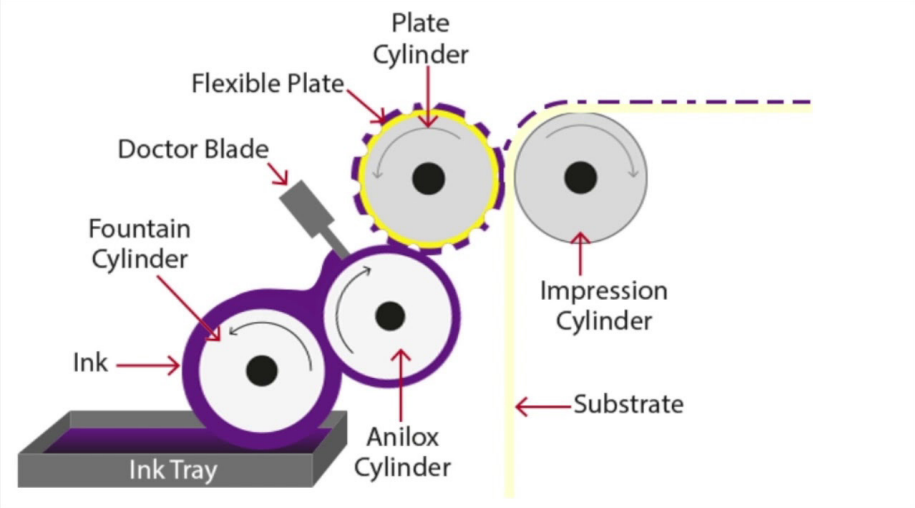


Figure 2: The flexographic printing process.

The anilox roller transfers a uniform thickness of ink to a flexible printing plate. The anilox cylinder has finely engraved cells with a particular ink capacity, not totally visible to the naked eye. These rollers are responsible for transferring inks to the flexible printing plates mounted on the plate cylinders. A polymer doctor blade scrapes the anilox cylinder to ensure that the ink to be delivered to the flexible printing plate is only what is contained within the engraved cells. The plate cylinder holds the printing plate, which is made from a soft flexible rubber-like material. The impression

cylinder applies pressure to the plate cylinder where the image is transferred to the image-receiving substrate. The printed substrate then passes though the drier.

The drying equipment is made up of two circuits, one for inter-colour drying and the other for the final tunnel, with a common exhaust. The drier blows hot air at high speed to completely evaporate the diluents (solvent) contained in the ink and to guarantee no residual diluent in the final product.

The dried substrate is then wound onto a roll for sitting, laminating or direct dispatch as specified by the customer.

1.2 Technical description: Solvent storage

The Operator proposes to use solvents supplied exclusively in intermediate ilk Containers (IBCs). No bulk solvent storage is proposed. An external bunded steel IBC storage container is proposed area as shown on the ground floor plan.

1.3 Technical description: Ink preparation & solvent use

All initial ink preparation will be undertaken in the ink prep room/ink kitchen, with its own dedicated ink lab/office, and will nominally contain:

- In use solvent IBCs
- Ink storage
- Ink mixing equipment
- Ink returns storage

The ink preparation area will be fully contained by way of sealed floors and spillage sumps.

Each press is served with its own ink delivery system and cleaning system.

The pre-prepared ink for the specified job will be transported by hand from the ink prep room to the press in a lined pail fitted with a half hinged lid. Lined pails may be used in order to minimise metal waste and pail cleaning. At the press, the pail will sit within a steel trip tray and connected to the ink delivery system. Viscosity adjustment will be undertaken manually, via the addition of a solvent from another hand-held pail. The half hinged lid allows access and partial containment.

Cleaning will be undertaken both on-line and off-line. On-line systems will be plumbed into the back of the press, served by recirculated solvent tank. The lid is closed during normal use. The solvent from the cleaning systems is recovered for re-use.

The press hall room has a sealed concrete floor to prevent emissions to land. There will be no emissions to drain (water) in the vicinity of the presses.

1.4 Technical description: Solvent recycling

The Operator proposes to install and use a Comexi Eco Distil 100 distillation unit for the on-site recycling of cleaning solvents and waste inks containing diluent solvents, for re-use in the printing process.

Figure 3: Comexi Eco Distil 100 distillation unit

Used on-press cleaning solvents will be transferred to an 2000 litre 'dirty solvent' tank adjacent to the distiller area distiller by an enclosed piped system. Used solvents for recycling are then transferred to the distiller via a solvent resistant flexible hose. The reactor has a volume of 145 litres. An electrically heated oil jacket then heat the solvent mixture to solvent boiling point and the evaporated solvent will distil out for collection in a 2000 litre 'distilled' tank via a separate solvent resistant flexible hose. Recycled solvent will be transported back to the press via a separate set of enclosed pipework.

The distiller and sociated tanks are equipped with high and low level sensors to facilitate automatic operation. Manual operation can also be achieved via the digital controller. All components are located in a fully bunded containment area.

The on-board control panel also has the capability to detail the volume of solvent recycled, and will detail any alarm events for other than normal operating conditions.

1.5 Technical description: Emissions abatement

Collected air from the drying tunnel of each press will be combined and ducted to a three tower regenerative thermal oxidiser (RTO) for solvent emissions abatement.

Each 'tower' in the RTO contains high efficiency multi-layer ceramic media heat regenerators, which are brought up to operating temperature (800-860°) using two 469kW modulating natural gas burners. Solvent-laden air is then drawn into the RTO during printing operations by a 110kW variable frequency drive process fan, to operate in a burner assisted or autothermal state (the

latter is where there is sufficient energy in the RTO to ignite the solvent without the input of any supplementary gas burner.

The RTO uses a system of steel valves to transfer incoming solvent air and exhaust air in an alternating manner between the three towers (1 entering, 1 exiting and 1 purge). The heat from exhaust air is stored in the ceramic media to pre-heat the incoming process air prior to combustion in the combustion. The combustion process takes place in the combustion chamber and the heat from that combustion process is regenerated by becoming the pre-heat energy for the next tower to be used for combustion. At operating temperature, solvent combustion is complete, however the process of switching between the towers is where solvent release occurs. A three tower system provides for better emissions abatement than a two tower system as the opportunity for solvent release is minimised due to the much reduced overlap in the purge.

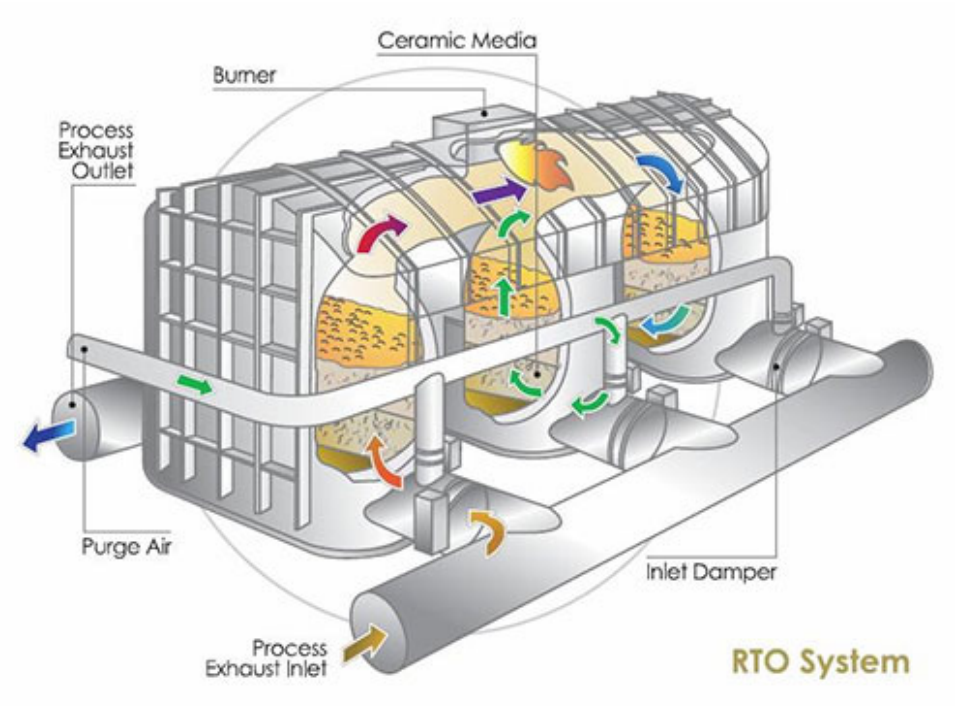


Figure 4: Regenerative Thermal Oxidiser diagram

The proposed RTO has been sized to accommodate one to three presses, and will have an air flow capacity of 27,000Nm^3/hr. The airflow control system will automatically control air flow through the RTO, and the control panel will be located inside the process building near the RTO. The control panel will display the main temperature indicators and will be accessed via Modicom Schneider M340 PLC and a Schneider touch screen.

2.0 Releases, techniques and monitoring

Anticipated releases from the normal operation of the activity will include contained and fugitive emissions. As the activity is not yet operational, actual emissions cannot be supplied, however these will be characterised and quantified as far as practicable.

2.1 Contained releases

Contained releases from the proposed activity will be ducted from the RTO and released to air via a self-supporting 17m stainless steel chimney stack with an internal diameter of 900mm. anticipated and regulated contained releases are detailed as follows:

Contained release	Anticipated emission limit	Max emission rate at minimum RTO flow	Max emission rate at maximum RTO flow
Total VOC as carbon	≤ 20 mg/Nm^3	0.0333 g/s	0.1500 g/s
Oxides of Nitrogen*	≤ 100 mg/Nm^3	0.1667 g/s	0.7500 g/s
Carbon Monoxide*	≤ 100 mg/Nm^3	0.1667 g/s	0.7500 g/s

* The BRef emission limits for oxides of nitrogen and carbon monoxide are 130mg/Nm^3 and 150mg/Nm^3 respectively, which are greater than the existing 100mg/Nm^3 limits provided by UK Sector Guidance SG6/11. The defra Local Authority Unit (LAU) has advised in its disaggregated BAT conclusions that there will be no backsliding on UK emission limits, and the existing 100mg/Nm^3 limits will prevail. The proposed RTO has been selected with the aim of compliance with the specified contained emission limits, and in the unlikely event that the contained VOC emission limit cannot be met, it is requested that the option of the total emission limit remains available to the Operator, see 2.2.

2.2 Fugitive / total releases

Fugitive / total solvent releases will be minimised as far as practicable, however they are inevitable in a printing process using solvents, arising from:

- RTO bypass (OTNOC)
- RTO bypass (normal operation until lower explosive limit passed at press start-up and shut-down)
- Storage losses (open containers etc)
- Minor leaks and spills
- Workplace and ink prep area venting

The Bref provides the following emission limits for fugitive / total emissions:

Parameter	Unit	BAT-AEL (yearly average)
Fugitive emissions as calculated by the solvent mass balance	Percentage (%) of the solvent input	12%
Total VOC emissions as calculated by the solvent mass balance	Kg VOCs per kg of solid mass input	< 0.3

2.3 Releases from other than normal operating conditions

Other than normal operating conditions (OTNOC) can lead to increased or unabated emissions, the most significant of which is complete unplanned RTO bypass

OTNOC	Hazard	Potential impact receptor	Management techniques
Unplanned RTO bypass	Unabated solvent release	Air	1. Planned preventative maintenance 2. Fast and effective recognition of bypass event 3. Logging the duration of bypass events
Poor RTO performance	Increased TVOC, NO_x and CO emissions to air	Air	1. Planned preventative maintenance 2. Defined operational parameters (temperature)
Distiller leaks and spills	Unabated solvent release	Air / land / Water	1. Bunding and containment 2. Planned preventative maintenance 3. Regular documented checks 4. Spill quantification
Stored materials leaks and spills	Unabated solvent release	Air / land / Water	1. Bunding and containment 2. Planned preventative maintenance 3. Regular documented checks 4. Spill quantification
Process materials leaks and spills	Unabated solvent release	Air / land / Water	1. Bunding and containment 2. Planned preventative maintenance 3. Regular documented checks 4. Spill quantification

2.4 Best available techniques

The Best Available Techniques (BAT) for this activity are detailed in the European Reference Document on Surface Treatment Using Organic Solvents including Preservation of Wood and Wood Products with Chemicals under the Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control), adopted by the relevant Countries in the UK prior to the British exit from the European Union (BREXIT). This technical application aims to provide an overall narrative to the application of Best Available Techniques from the 'BRef'. The full BAT assessment is quite lengthy and detailed in a separate document to this application: Appendix A.

2.5 Monitoring

Emissions monitoring will relate to contained emissions and fugitive emissions unless the contained emission limit cannot be met. As we do not yet know the actual performance of the RTO, the Operator requests an and /or approach to demonstrating compliance. A suggested permit condition would be:

> *The Operator shall demonstrate compliance with the contained and fugitive emissions limits or the total emission limit.*

2.5.1 Contained emissions monitoring

The maximum VOC release at maximum RTO flow and at the emission limit is calculated as 540g/hr, meaning that continuous VOC monitoring is not required.

Extractive emissions will be periodically undertaken to MCERTS standards, and the chimney stack referred to in section 2.1 will be equipped with two emissions sampling ports located at 90° to each other, and in accordance with Environment Agency Guidance: Monitoring stack emissions: measurement locations (formerly known as M1). Emissions in waste gases will be monitored at the frequency and in accordance with the following standards:

Parameter	Monitoring standards	Proposed monitoring frequency
TVOC	EN 12619	Once every year
NO_x	EN 14792	Once every year
CO	EN 15058	Once every year

2.5.2 Fugitive emissions monitoring

Fugitive emissions will be calculated as a yearly average, based on a calendar year (1st January to 31st December inclusive) via solvent mass balance in an annual Solvent Management Plan report fully explaining the methodology and calculated uncertainties.

The fugitive emission (F) will be calculated according to one of the two following equations:

F = O2 + O3 + O4 + O9

Or

F = I1 – O1 – O5 – O6 – O7 – O8

The fugitive emission limit value is expressed as a percentage of the solvent input, which will be calculated according to the equation below:

I = I1 + I2

The terms in the above equations are detailed as follows:

Term	Description
I1	The quantity of organic solvents or their quantity in mixtures purchased which are used as input into the process/activity (including cleaning solvents).
I2	The quantity of organic solvents or their quantity in mixtures recovered and reused as solvent input into the process/activity. The recycled solvent is counted every time it is used to carry out the activity.
O1	Emissions in waste gases
O2	Organic solvents lost in water
O3	Organic solvents which remains as contamination or residue in products
O4	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.
O5	Organic solvents and/or organic compounds lost due to chemical or physical reactions.
O6	Organic solvents contained in collected waste.
O7	Organic solvents sold or are intended to be sold as a commercially valuable product.
O8	Organic solvents contained in mixtures 'recovered for reuse but not as input into the process/activity, as long as not counted under O7.
O9	Organic solvents released in other ways. e.g. abnormal events or spillages if not included under O6.

3.0 Groundwater discharges

The strata beneath the northern area of the site is indicated to comprise Fluvio-glacial Gravel, underlain by the Triassic Mercia Mudstone Group. The strata beneath the southern area of the site is indicated to comprises 1st River Terrace Deposits, underlain by the Triassic Mercia Mudstone Group. The superficial deposits underlying the site are a Secondary A Aquifer and the bedrock underlying the site is a Secondary B Aquifer. There are named surface watercourses identified within 250m of the site. A pond is present 5m beyond the eastern boundary of the site. A groundwater vulnerability map is shown in figure X

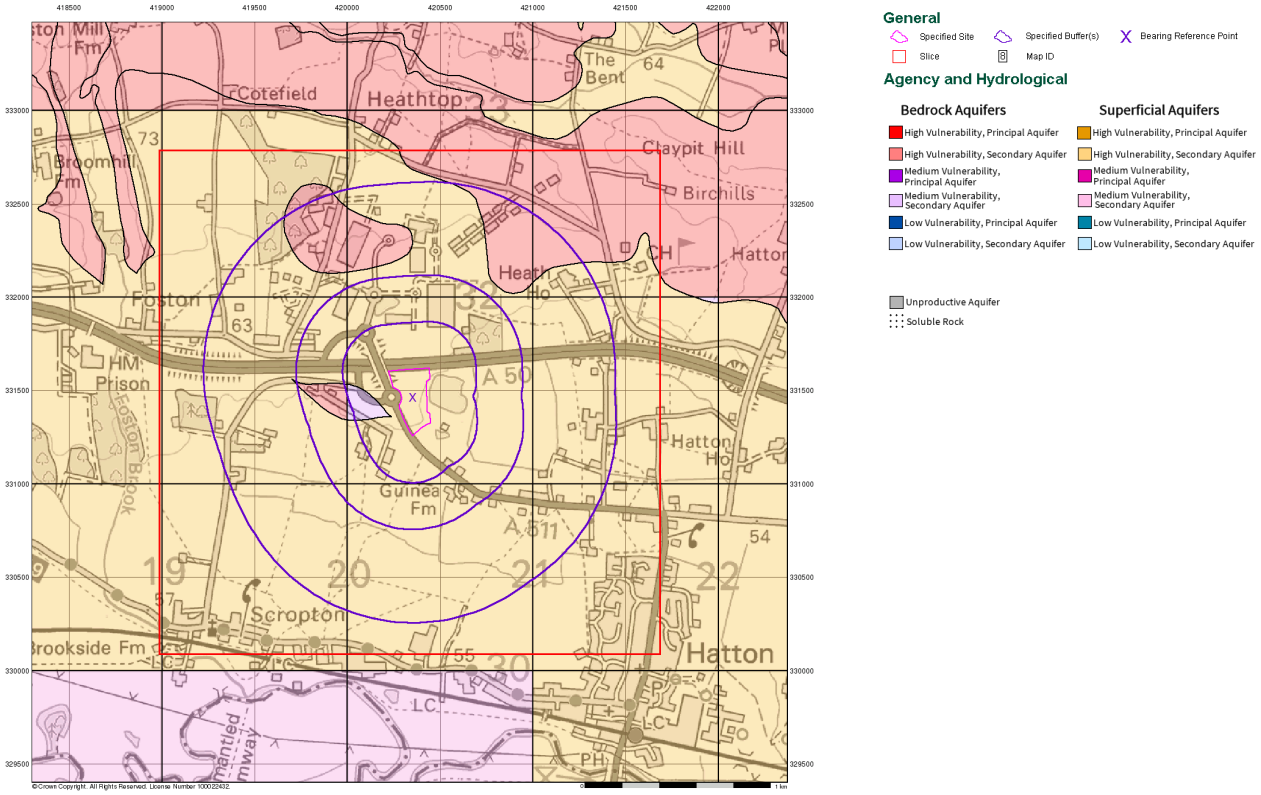


Figure 5: groundwater vulnerability map.

The installation does not propose any process emissions to water under normal operating circumstances: it does not use 'process water', and there are no effluent treatment plant associated with the operation of the printing activity. There will be no intentional point source emissions of List 1 or list II substances to ground water from the operation of the installation.

All solvent use areas will be sealed and contained to precent released of solvent to ground or groundwater. In addition and do to the proximity of groundwater, soakaways will not be used in the construction of the site buildings.

4.0 Raw materials, water etc

As the installation is not yet operational, raw materials consumption cannot be quantified, however the Operator proposes to include raw materials use in an annual report to the Regulator. Some of this information will also be included in the annual solvent management plan. Water will not be a significant consumable.

4.1 Inks and solvents

Inks & Solvents:

- Ink (25 litre pails)
- Solvents (205 litre drums)
- Solvents (1000 litre IBC)

Inks and solvents are likely to contain MEK, ethanol and ethyl acetate.

4.2 Substrate materials

Print substrate may include the following:

- Orientated Polypropylene (OPP)
- Cast Polypropylene (CPP)
- Low Density Polyethylene (LDPE)
- Polyethylene Terephthalate (PET)
- Foil

Raw materials use will be reported to the Regulator annually. The anticipated format of the annual report / annual statement of site condition is included as Appendix B.

5.0 Waste & recycling

Wherever practicable, opportunities for reducing waste and recycling will be identified in accordance with the waste hierarchy (figure 6).

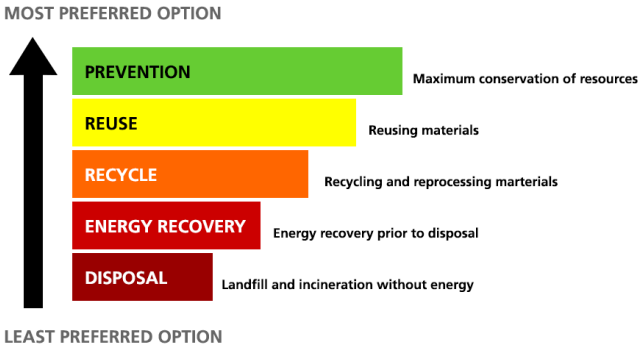


Figure 6: Waste hierarchy.

The typical waste materials likely to be produced by the installation are as follows:

- Make-ready/misprint film
- Cardboard substrate cores
- Wooden packaging
- Pail liners (if used)
- Soiled rags and wipers
- Waste inks and solvents

The likely waste streams, quantities, fate and opportunities are detailed below:

	Waste type	quantity	Likely handling & storage	Fate	Opportunities
5.1	Make-ready/misprint film	Not know	Bales	Disposal	Film not widely recycled
5.2	Cardboard web cores	Not know	Internal storage	Disposal	Card recycled
5.3	Wooden packaging	Not know	Skip	Disposal	Re-uses off site as fuel?
5.4	Pail liners	Not know	Closed drums	Disposal	No
5.5	Soiled rags and wipers	Not know	Closed drums	Disposal	Off-site laundry
5.6	Waste inks and solvents	Not know	Closed drums	Recycling	On-site recycling

The Operator proposes to include waste disposal and further opportunities for re-use or recycling in an annual report to the Regulator. This report will also assist in the submission of the annual PRTR.

The anticipated format of the annual report / annual statement of site condition is included as Appendix B.

6.0 Energy

6.1 Energy consumed and generated

Electricity and natural gas will be used in the installation to power the presses and to initially fuel the proposed RTO until autothermal operation on recovered solvent. Meter readings will be used to chart energy use on a calendar year basis.

It is envisaged that a summary report detailing energy consumption will be submitted to the Regulator annually.

The installation will not generate energy.

6.2 Energy efficiency

The Operator proposes to operate the installation as efficiently as possible, and will use the gathered energy data to report the Regulator as above, and to demonstrate energy performance compared to BAT 19 as follows:

Sector	Process	Unit	BAT-AEPL
Flexography and nonpublication rotogravure printing	All product types	Wh/m^2 of printed area	50-350

Once the Operator is possession of several years' worth of energy data it will be possible to start to establish trends and identify any further potential opportunities for energy efficiency.

The anticipated format of the annual report / annual statement of site condition is included as Appendix B. The exact contents may change as agreed with the Regulator.

7.0 Noise and vibration

7.1 Sources of noise and vibration

The proposed printing activities will be undertaken fully within the process building, however potential external noise sources are as follows:

- Vehicle movements to and from the site
- RTO induced fans and motors

As part of the planning process, SLR Consulting was engaged to undertake a noise assessment undertaken to BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound.

Their assessment was based on the results of a noise survey carried out at locations representative of the nearest Noise Sensitive Receptors (NSR) to the site over representative daytime and night-time periods and is in accordance with the National Planning Policy Framework (NPPF) and includes the above specified anticipated noise sources.

The report concluded that:

- At all receptors, the predicted rating levels from the proposed operation of the site are no greater than the derived background sound levels resulting from the proposed operation of the site. Therefore, the SDC requirements are predicted to be achieved during normal operations from the site.
- The additional traffic associated with Plot 10 is calculated to have a Low Impact which is not considered to be significant.

The noise impact assessment report is provided as Appendix C.

7.2 Minimizing of noise and vibration

The RTO has yet to be installed ad the way it will be installed and operated will aim to ensure that noise emissions are minimised as far as practicable, including:

- Acoustic cladding / dampening (if required) of fan / motor housings
- Regular preventative maintenance of bearings, fans, valves and motors

8.0 Site report

The purpose of the site report is to set a baseline for the state of the site before the installation was put into operation, as a forward-thinking provision for a future date whet the permit may be surrendered.

The Regulator may only accept the surrender of a permit where they are satisfied that the necessary measures have been taken:

a) to avoid any pollution risk resulting from the operation of the installation, and
b) to return the site of the regulated site to a satisfactory state, having regard to the state of the site before the installation was put into operation.

The 'state' referred to in paragraph (b) is the state when the PPC or EP permit was issued.

8.1 Desk study

EMCUS Geotechnical and Geo-environmental undertook a Geo-Environmental & Geotechnical Desk Study for the site (Report MJH/J2038/D1/2). The report summarised that:

- The site is indicated to have been undeveloped before becoming part of an airfield at some time between 1924 and 1955. The site is indicated to have been returned to rough fields / rough grazing in circa 1996.
- The strata beneath the northern area of the site is indicated to comprise Fluvioglacial Gravel, underlain by the Triassic Mercia Mudstone The strata beneath the southern area of the site is indicated to comprise 1st River Terrace Deposits, underlain by the Triassic Mercia Mudstone.
- The site is indicated to form part of a historical landfill, identified as Church Broughton Airfield. The landfill is reported to have operated from March 1987 - December 1988 and accepted inert and industrial waste.
- Gross contamination of the site is not anticipated. However, elevated concentrations of metals, polyaromatic hydrocarbons and asbestos may be present. Furthermore, the possibility of some localised contamination of the strata beneath the site associated with the usage & storage of fuels and oils could not be completely discounted at the desk study stage.
- Landfilled material beneath the site and adjacent area has the potential to generate concentrations of carbon dioxide and perhaps methane which may impact the proposed development.
- No radon protection measures are required at the site.

The full report is provided as Appendix D.

8.2 Intrusive investigation

An intrusive ground investigation was undertaken by Construction Design Solutions (CDS Project Reference : 2022-9385). The report summarised that:

- The results of the investigation have revealed the strata beneath the site is generally free of significant contamination for the proposed industrial end use. However, elevated concentrations of Poly Aromatic Hydrocarbons (Indeno(123cd)pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene and / or Benzo(a)pyrene) have been revealed in the samples of the gravelly Made Ground encountered in TP7 at 0.05m bgl., and TP10 at 0.1m bgl. It is considered those elevated Poly Aromatic Hydrocarbon concentrations are likely to be associated with the asphalt and ash / clinker encountered in that strata, with similar gravelly Made Ground also encountered at shallow depth in TP15, TP16 and TP18.
- Across the majority of the site, it is considered that the proposed hardsurfacing of the building floors and hardstandings, etc., will provide a break in the contamination source to receptor pathway and prevent the elevated Poly Aromatic Hydrocarbon (PAH) concentrations in the shallow gravelly Made Ground from posing a significant risk to end users.

The full report is provided as Appendix D.

8.3 Monitoring risk assessment

The Construction Design Solutions report also concluded that:

- With the proposed development generally comprising non permeable surface cover managed by a dedicated drainage system and following the excavation / removal of the gravelly Made Ground with elevated PAH concentrations from the proposed soft landscaping areas, it is considered the site will not pose a significant risk to controlled waters / environmental receptors.

It is envisaged that the standard monitoring of 5 years for groundwater and 10 years for soil quality will likely be too frequent for the site given the proposed containment measures and the overall hardstanding of the site.

The Operator requests that groundwater and soul monitoring only be undertaken if an OTNOC event has led to a pollution incident with the potential to affect soil and or groundwater, and requests Bespoke Permit Condition Implementing BAT 13 as follows:

"The operator shall:

(a) maximise the availability and performance of equipment critical to the protection of the environment;
(b) record all periods of other than normal operation, their cause and duration and where possible their effect on emissions."

9.0 How the installation be returned to a satisfactory state

The Operator envisages many years of trading from the proposed installation; however they are obliged to produce an outline plan for returning the land to a satisfactory state. Specifically, this is not remediating the land to greenfield conditions, but returning the land to the state in which it was at the commencement of the permit.

The intrusive ground investigation was undertaken by Construction Design Solutions (CDS Project Reference : 2022-9385) identified that he strata beneath the site was generally free of significant contamination for the proposed industrial end use. However, elevated concentrations of Poly Aromatic Hydrocarbons (Indeno(123cd)pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene and / or Benzo(a)pyrene) have been revealed in the samples of the gravelly Made Ground encountered in TP7 at 0.05m bgl., and TP10 at 0.1m bgl. It is considered those elevated Poly Aromatic Hydrocarbon concentrations are likely to be associated with the asphalt and ash / clinker encountered in that strata, with similar gravelly Made Ground also encountered at shallow depth in TP15, TP16 and TP18 (likely to be removed as part of the construction process).

It is envisaged that for the duration of the permit, the Operator will maintain an annual statement of site condition to inform the permit surrender plan on cessation of regulated activities.

9.1 Annual statement of site condition

The annual statement of site condition is a simple annual report detailing the following:

- Changes to the activity, including the activities undertaken and materials used.
- Changes to the installation boundary.
- An assessment of measures taken to protect land and water.
- A summary of any pollution incidents, including the quantification of any leaks or spills and actions taken.
- A summary of maintenance and inspections
- The results of any groundwater or soil monitoring undertaken.

The anticipated format of the annual report / annual statement of site condition is included as Appendix B.

9.2 Permit surrender plan

When the time comes, a permit surrender plan will be compiled. This will detail how the Operator plans to safely decommission the site in a manner that will prevent pollution to soils and water, particularly if any infrastructure associated with the activity is to remain on site.

The permit surrender plan will draw on the information contained in the annual statement of site condition to build an overall picture of how the site has been operated and the risks posed (if any to soil and groundwater.

A decision can them be made if intrusive investigations are required to confirm that the site will be left in a satisfactory state for permit surrender.

10.0 Environmental management

The operator proposes to implement a fully documented environmental management system (EMS) (accreditation level to be confirmed) incorporating the generic BAT1 features within 12 months of the date of any permit granted.

Specifically for surface treatment using organic solvents, BAT is also to incorporate the following features in the EMS:

(i) Interaction with quality control and assurance as well as health and safety considerations.

(ii) Planning to reduce the environmental footprint of an installation. In particular, this involves the following:
  (a) assessing the overall environmental performance of the plant (see BAT 2);
  (b) taking into account cross-media considerations, especially the maintenance of a proper balance between solvent emissions reduction and consumption of energy (see BAT 19), water (see BAT 20) and raw materials (see BAT 6);
  (c) reducing VOC emissions from cleaning processes (see BAT 9).

(iii) The inclusion of:
  (a) a plan for the prevention and control of leaks and spillages (see BAT 5 (a));
  (b) a raw material evaluation system to use raw materials with low environmental impact and a plan to optimise the use of solvents in the process (see BAT 3);
  (c) a solvent mass balance (see BAT 10);
  (d) a maintenance programme to reduce the frequency and environmental consequences of OTNOC (see BAT 13);
  (e) an energy efficiency plan (see BAT 19 (a));
  (f) a water management plan (see BAT 20 (a));
  (g) a waste management plan (see BAT 22 (a));
  (h) an odour management plan (see BAT 23).

In formulating the EMS, It is recommended that that the operator makes a checklist of the above requirements to ensure that they are incorporated into the EMS.

11.0 Impact on the environment

11.1 Report and context

Delta-Simons Limited ('Delta-Simons') undertook an Air Quality Assessment to inform a full planning application for the erection of an employment building (Use Class B8, B2) and Ancillary E(g) at Plot 10 with associated landscaping, drainage, car parking, refuse stores and other infrastructure proposed (the 'Proposed Development').

The Proposed Part A2 flexographic printing works is to comprise two printing presses which will use and release a mixture of MEK, ethanol and ethyl acetate through a Regenerative Thermal Oxidiser (RTO) and Delta Simons has undertaken an assessment to determine whether it has the potential to cause adverse air quality impacts during its operation.

An Air Quality Assessment, including Detailed Dispersion Modelling, has been prepared to determine baseline conditions in the vicinity of the Site and to assess potential impacts associated with the Proposed Development, in accordance with the requirements of the National Planning Policy Framework (NPPF). The Air Quality Assessment will, therefore, consider ambient pollutant concentrations, namely nitrogen dioxide (NO2), volatile organic compounds (VOCs) and carbon monoxide (CO), across and in the vicinity of the Site.

11.2 Summary & conclusions

The predicted effects associated with the operations at the Site have been assessed based on detailed dispersion modelling. In order to represent a robust setup in relation to likely operational impacts, it has been assumed that the Site will operate continuously for 8,760-hours per year, with two flow rate scenarios considered in relation to the functionality of the RTO and its associated emission rates.

The Air Quality Assessment considering both the minimum and maximum flow rate scenarios for the RTO, concluded that the operation of the Site would not result in any predicted exceedances of the relevant Air Quality Objectives (AQOs) at sensitive receptor locations within the vicinity of the Site. The predicted impacts associated with the operations at the Site are **negligible**, and the residual effects are considered to be **not significant** at all sensitive human receptor locations.

Nitrogen oxides (NOx) levels, and nitrogen and acid gas deposition rates were also predicted at the relevant ecological sites. Results indicated that emissions from the operations at the Site would not significantly affect existing conditions at either ecological designation. Based on the results of the assessment, it is considered that, the Proposed Development does not result in any significant effects at sensitive receptor locations and complies with national and local planning policies. Therefore, there are no air quality constraints considered to restrict planning or permitting consent.

The full report can be found in Appendix E.

Resources:

STS BREF
Surface Treatment Using Organic Solvents including Wood and Wood Products Preservation with Chemicals | Eippcb (europa.eu)

STS BREF BAT Conclusions
https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020D2009&from=EN

UK Interpretation Guidance for…
Best Available Techniques (BAT) conclusions for surface treatment using organic solvents

Maps, plans & drawings:

Location plan

Site plan

Layout plan - Ground floor

Layout plan - Distiller

Layout plan - Ink room

Elevation plan

Appendices:

Appendix A - Assessment of Best Available Techniques

Appendix B - Annual report and statement of site condition.

Appendix C - Noise assessment

Appendix D - Site condition desk study

Appendix E - Site condition intrusive report

Appendix F - Air emissions assessment