



Quotation: **Replacement Extraction System**

Client: **Biogen - Westwood Site**

FAO: **Ms Kate Lister**

EXEON[®]
CLEAN AIR FOR INDUSTRY



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2nd June 2023

Dear Kate,

We thank you for your recent email enquiry and have pleasure in quoting herewith.

We trust our offer will be of interest and assistance, however should you require any additional information or you have any queries relating to the quotation, please do not hesitate to contact us.

Yours sincerely,

Best Regards,

Lewis Hutchins

Technical Sales

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Quote Details

Quote Ref: Q 501383

Client: Biogen - Westwood Site

FAO: Kate Lister

RE: Replacement Extraction System

Site Notes

Exeon have been asked to provide an odour control system for Biogen Westwood, nr Rushden.

From experience at similar operating sites, storage and processing of the waste creates high levels of odour (over 20,000ou/m³ frequent), and some airborne particulate (dust). This creates very uncomfortable working conditions for staff, especially in hot weather, and environmental issues without extraction and emission control.

The site currently has insufficient and incorrectly designed extraction and abatement at present and no elements apart from the fan are really deemed suitable for use. Ventilation proposed to the area is as follows:

Processes within the building:

- Food Waste delivery
- Storage of Food waste
- Treatment, including maceration, separation, etc
-

Flow rates are suggested as follows:

- Area of the building to be 'treated' will be approximately 13,000m³.
- Total air change rate on an area this size would normally be 3 air changes, which is accepted practice by the EA
- Total airflow therefore would be 39,000m³/hr

Proposal

We propose the installation of our 'Nodour' deep bed carbon adsorber system utilizing a horizontal bed arrangement to facilitate a twin layer approach to the carbon media. We suggest 70% Virgin Activated carbon coal granules and 30% Copper impregnated carbon.

Galvanised spiral ducting is proposed to be sufficient noting the condition of the existing material in the de-pack area. Installation will be along the flank wall as per attached sketch with the introduction of ventilation louvres at low level on the opposite wall for supply air provision.

The location of the supply air provision is key to ensure replacement air is brought in in a controlled and well distributed manner and to provide acceptable working conditions inside the factory when doors are shut. To ensure the building is under sufficient negative pressure, supply air should be via well-placed pressure relief dampers & weather louvres at low level.

Odour unit threshold has been based on a discharge $1,000\text{ouE}/\text{m}^3$ threshold at present. We anticipate odour unit levels inside the building to be as high as $10\text{-}20,000\text{ou}/\text{m}^3$ in peak conditions, without extraction. With extraction it is considered this will bring it down internally closer to $6\text{-}8,000\text{ouE}/\text{m}^3$.

To achieve the $1,000\text{ouE}/\text{m}^3$ at discharge, we would usually recommend a 3.0 second dwell time across an Activated Carbon bed for optimal life on deep bed carbon systems for reception halls. The Carbon bed should be a dual-layer system, and include 70% Virgin Activated carbon coal granules and 30% Copper impregnated carbon. However, initially to accommodate a minimal budget, and considering the filter unit suggested will be horizontal bed so additional carbon can be easily added, we recommend a total dwell time of 1.5 seconds could be used.

We suggest that the existing louvres in the building should be blocked over as they are incorrectly located. We have not allowed for these works immediately.

Shutdown Considerations for Access

We would suggest a scaffold access is put through along the flank wall below the ducting run proposed on the attached sketch. Allowance should be made for a 4 board width and a 2 metre lift from floor level with ladder access to one end and a continuous fall arrest handrail to the length. One loading entrance to the lift at approximately mid length of 3 metres width should be considered. All external access requirements will be allowed for within our costs.

Internal scaffold access shouldn't take any more than a day to erect (by others) and working in this manner will enable the site to operate with care but unimpeded for the duration of the works.

Internal install duration will not exceed 1 week in total at which point the scaffold can be struck and removed. External works will not affect the regular working environment and will be well away from operating machinery and the like.

Specifications

Nodour 3m/12m High-Flo Odour Abatement System

Dust Filter Unit: High capacity dust filter unit with grade M5 filters, providing protection to carbon beds

Construction: Painted 3.0mmth mild steel

Access: Via integral doors to side of housing for prefilter access.

Size: 2895mmH x 2440mmW x 3047mmL

Colour: RAL6029 Green

Carbon Filter Unit: Activated twin layer carbon bed system providing a minimum of 1.0 second dwell time against an airflow of 39,000m³/hr.

Carbon type: Twin layer of 75% high grade 60CTC and 25% copper impregnated. Total volume 10.8m³, or 5,400kg.

Construction: Painted 3.0mmth mild steel

Access: Carbon pod access through multiple filling hatches in top of adsorber.

Size: 2895mmH x 2440mmW x 12190mmL

Colour: RAL6029 Green



Ductwork – Galvanised Spiral

The efficiency, performance and noise levels of an extraction system are determined largely by the extract system connected to it. Our experienced teams are aware of and will confirm to the ductwork legislation of DW/144.

Material: Galvanized spiral ductwork, with high radius bends, fabricated and installed to the recommendations of HVCA DW/144.



Extract Fan – Centrifugal (if required)

Type: Centrifugal Extract Fan with motor out of airstream, direct drive

Material: 2mm mild steel, 2mm mild steel painted support parts

Duty: Up to 2000Pa @ 39,000m³/h.

Estimated power: 45kW

Motor: 3-phase, 4-pole



Scope of Works

We propose the following works:

1. Remove existing system from rear plant area including existing support steelwork for the pre-adsorber ducting.
2. Install prefilter unit on to the existing concrete slab as discussed. See sketches EXE-G-DR-001 and 002.
3. Install external adsorber unit on to the existing concrete slab as discussed and connect to prefilter unit.
4. Install ductwork externally to high level, then into the de-pack hall as indicated on attached sketch.
5. Install internal ducting run from access scaffold (by others) as attached sketches EXE-G-DR-001 and 002.
6. Install extract grills as appropriate, with dampers for balancing.
7. Install discharge ducting from outlet of adsorber to fan and through to local stack (potential use of existing fan and stack to be clarified).
8. Upon fan being wired in (by others), balance and commission extract system, calibrate gauges and handover.

Budget Price Options

(including design, supply, install, and commission)

Adsorber and ducting: £98,100.00

Additional costs for consideration:

New Fan - £21,000.00
(assumes existing fan isn't of sufficient duty)

Carbon Media (initial fill) - £38,000.00
(70% Virgin Activated and 30% Copper Impregnated)

Removal works - £9,100.00
(external ducting including steel support structure - disposal by others)

Specific Exclusions

1. We have assumed all builders work, including making good, is by others. This includes padstones if required for the proposed filter units.
2. We have assumed that any materials stripped out/dismantled on site are the client's responsibility to dispose of.
3. We have assumed that all access equipment will be provided by site.
4. We have assumed that all electrical works would be by others.
5. We have assumed that all works would be completed in normal working hours.
6. It is assumed that plant and ductwork supports can be provided from building members where needed. If structural approval/ further support is needed it is the client's responsibility.
7. Price submitted is subject to review & agreement of contract terms.
8. Control box protection is allowed for as standard IP54. Other protection available upon request.
9. Delays on the project after programme acceptance (this will be issued after operations take over the project) due to reasons outside Exeon's control may result in rising costs, which would need to be passed on to the customer. Also, if the project is delayed after manufacture of equipment has started, then storage costs may be applicable.
10. We have not allowed for the costs or management of running the project as a principle contractor, and have assumed the customer / client has taken this responsibility.
11. If permission is required from the Landlord or Local Authority, we have assumed this to be the responsibility of others to organise as necessary.
12. We have based this quotation on the information provided and it is subject to a further intrusive site survey for full confirmation.
13. We have not included for connection to any Building Management Systems, assuming that if required the controls contractor would be responsible for this including any necessary interface PCB's required for functionality. Fire Strategy considerations not known or allowed for.
14. We have not included for drafting works or as installed drawings.
15. One demonstration visit is allowed for, however this would need to be part of the commissioning visit. Any further visits requested may be at additional cost.
16. We offer to undertake the ongoing maintenance of the equipment subject to agreement of an Exeon maintenance contract.
17. Standard equipment warranty is for 12 months on all new equipment supplied and installed by Exeon.
18. Our standard Terms and Conditions of Sale also apply, available on request

TERMS AND CONDITIONS

Clarifications:

1. All prices exclude VAT
2. Quotation valid for 7 days.
3. All work carried out by EXEON is subject to these T&Cs unless exception is given in writing prior to work commencing
4. All items excluded unless specifically mentioned in scope of works
5. EXEON may update the T&Cs at any time. Changes will only come into effect once a subsequent quote has been ordered.
6. EXEON will have Public and Employer's Liability Insurance to the value of £5million whilst work is being carried out.

Invoicing and Payment:

40% upfront

30% following delivery of all materials to site

25% following completion of mechanical installation (not including commissioning)

5% from completion of our works

1. Invoices that are not paid on time will be subject to a £40 administration charge and daily interest at 8.25% APR.
2. We have assumed for continuous working, any delays outside what is considered reasonable will be chargeable at £50 per hour.
3. Any works cancelled with less than 24 hours' notice will incur stand-down charges.

Ordering:

1. Before any work can commence, a written instruction must be issued by the client. This may take the form of a purchase order.
2. Any work outside the scope of the original quote, must also be requested in writing.
3. Lead time is dependent on site diary at the time of ordering, but expected lead time from approval of design of this project would be 12-14 weeks