

Not Duly Made Response 08/04/22

This Response is submitted and subject to the Commercial Confidentiality claim (justification provided with the permit application)

1. Application Form C2, Section 6 – Environmental Risk Assessment.

The Environmental Permit variation Application supporting document, states “There are no new process emission points introduced as part of this variation. Due to the existing controls and batch sequencing of the production process, the profile of the emissions from the installation will not change. All process emissions have been previously assessed, which has found the impact to be insignificant on surrounding human and ecological receptors. This has been accepted by the EA and no material changes will occur as a result of this variation application”. However, the application also states that “the operator is installing a further reactor to Line 3 that will increase its production capacity and a distillation column to Line 1 to increase the range of products it can manufacture”.

It has not been demonstrated that the proposed increase in production capacity or product range will not introduce potential environmental risks in areas such as emissions to air and water and waste generation, that have not been previously risk assessed.

i. Submit a quantitative assessment (using the Environment Agency’s H1 risk assessment tool or equivalent) that demonstrates there is no increased environmental risk from discharges to air and water that may change as a result of the proposed permit variation.

Air:

See Air Dispersion Model (INSERT REF)

Within H1 it is not possible to apportion emissions from the plant to account for the batch sequencing of the reactors, therefore the operator has opted to present an air dispersion model that takes account of the profile of emissions for worst case scenario ie when two of the three reactor peak releases may coincide resulting in the highest loading of releases for the screening of short term releases.

Batch processing will have an impact on the profile of emissions and maximum loading to the local environment as:

- Each line has 2 reactors but only one evaporator, treatment vessel and degasser.
- The reactors take much longer to complete a cycle (██████████) where the rest of the downstream processes take less than half of this time.
- On each line each reactor is loaded at regular intervals of ██████████.
- The lines share a loading system so they cannot all be loaded simultaneously. The screening assessment assumes that as soon as the reactor is empty and has cooled sufficiently, it is reloaded. In practice the loading gap will be greater than to ██████████ due to bottlenecks in the supply of raw materials and/or demand of finished goods.

For the reasons highlighted above it is not meaningful to screen the emissions to atmosphere from the installation using H1 and the operator opted to present the air quality assessment in the form of an ADSM dispersion. Since the original assessment further monitoring has been undertaken of the releases capturing the profile of emissions over the complete production cycle. This has been taken into account when quantifying the increase in the loading of the emissions from the installation as a result of the variation to provide input data for the dispersion model.

It is noted that emissions from the plant have been previously monitored by the operator and have been found to be made up of fatty acids [REDACTED]. Whilst [REDACTED]. Whilst not a permit condition, as a responsible operator annual emission extractive testing is carried out in accordance with BS EN 12619 which provides the concentration of carbon from which the species of VOC has been extrapolated to determine the loading to the environment. This has been used to populate the model submitted in support of this variation application.

See Air Dispersion Assessment Report

Effluent:

See Surface Water Risk Assessment

Waste:

At full production, and all three lines running, a 25% increase filter cake waste is to be expected. However, this is likely to be less as Line 3 is projected to require less treatment powder and for the maximum capacity of the installation an overall increase of nearer 17% would be expected.

[REDACTED]. All of this treatment powder is subsequently filtered out and disposed of from site as controlled waste. The introduction of a third reactor under this variation will result in around an additional [REDACTED] of controlled waste per day being generated by the installation. This will be managed through the existing controlled waste disposal routes. The variation does not necessitate any change to the handling and storage facilities already in place on site or the environmental controls for the segregation and safe storage pending disposal in accordance with the waste hierarchy.

ii. If there is a change in emissions (even if they screen out at risk assessment), submit a fee of £779 for our completion of a Habitats Risk

Assessment (your facility is 8.4 km from Manchester Mosses (Special Area of Conservation)).

The operator made payment by BACS using payment ref PSCAPPMANDI002 on or around 4/4/22

2. Application Form C2, Section 6 – Environmental Risk Assessment.

The current permit, EPR/BL9640IM/V008, has three activities (AR1, AR2 and AR3) all carrying out “Esterification of fatty acids to produce synthetic polyol ester (commercially known as MIDEL®)”. The Environmental Permit Variation Application supporting document states “The operator is incorporating additional distillation capacity within Line 1. By improving the ability of this line to separate the ester from the excess acid this will provide greater flexibility to its operations and increase the range of product types (synthetic esters) that can be manufactured”.

i. Confirm if all three lines will in future produce the same polyol ester (Midel) or whether different esters will be produced.

All three lines will produce the synthetic ester MIDEL 7131 which is made with a mixture of fatty acids, and consequently is (and always has been a mixture) of esters. As part of this variation Line 1 will be modified to make a new ester – MIVOLT DF7. This ester is based [REDACTED] [REDACTED] so it is marginally more volatile than MIDEL 7131. The acid used is [REDACTED], the same as one of the existing acids. No modification to the reactors will be needed as the reaction can be conducted as with the MIDEL 7131 ester. The current

evaporator is not capable of processing this ester because the evaporation step is not refined enough [REDACTED]. This step therefore requires fractional distillation. The fractional distillation can be done in a number of ways but, through consultation with industry specialists and taking account of the nature and scale of production required, the best method identified from a process efficiency perspective is to utilise the existing evaporator with its acid collection tank and vacuum system but and add on a distillation column in situ where the vapour from the main (existing) evaporator vessel enters the distillation column to refine the separation.

As the vacuum system will not be altered, the emission point will be the same and will not change. As the acid is one already being used, the type of emissions will not change. The amount of emissions coming from this line will not increase when the distillation column is installed because only one ester can be made at a time and there will not be an increase in capacity.

ii. Define the impact on potential emissions to air or water if multiple different esters are produced on site.

Air

As the vacuum system will not be altered, the release point to atmosphere from the installation will be the same and will not change. As the acid is one already being used, the type of emissions will not change. The amount of acid emitted from this line will not increase when the distillation column is installed because only one ester can be made at a time and there will not be an increase in capacity.

Water

The capacity of the reactors will not change as a result of the manufacture of additional products. The amount of wastewater produced by the process requiring discharge will be 17% less per reaction. However, it is not possible to calculate this reduction further as the actual split between products that will be made is not known at present.

Other waste

Waste filter cake from the treatment process is not envisaged to change. The type of waste will be the same as with MIDEL 7131.

3. Application Form C2, Section 2, Table 1.

The Environmental Permit Variation Application supporting document states that “in agreement with the local inspector, the quality control laboratories which serve the activity have been brought within the installation (as a Directly Associated Activity]”. This document also states that the laboratories “support the testing and development of new synthesised esters associated with Midel range of products” and “Product development projects require that very small volumes of esters are synthesised in the lab using two fume cupboards”.

Quality Control laboratories are rarely included within the permitted installation and gaseous releases from such laboratories are rarely included as point source discharges in the environmental permit. The local inspector may have based his request to include these laboratories within the installation on the development work being carried out.

i. Define the nature development work being carried out within the laboratories.

[REDACTED] One of two such reactions could be completed per week. The projects undertaken do not require that these reactions are run every week and months could go by without such an experiment taking place. Conversely, several may be run simultaneously as project plans and resource demands. [REDACTED]

ii. Confirm the amounts and names of chemicals being mixed within the development work activities and the amount of products being produced.

Reactions are conducted on a 1 to 2 L scale. The type of material would vary depending on the project and cannot be defined. [REDACTED]

iii. Should the amount of materials produced in the laboratories not exceed tens of kilograms of product, update the application documentation and application forms to remove the addition of laboratories from the scope of the permit variation application.

Not applicable – the volumes being made are insignificant and are for evaluation purposes only.

4. Application Form C2, Section 6 – Environmental Risk Assessment.

The Environmental Permit Variation Application supporting document states “There is no increased potential for causing offence due to noise beyond the installation boundary” and “There are no significant sources of noise arising from the new process”. No evidence is provided to support these statements.

i. Define all potential new sources of noise being added to the permitted installation because of this permit variation application.

ii. Define the potential noise generated by each new source of noise added to the installation using manufacturers’ data or equivalent.

iii. Quantitatively demonstrate that these new noise sources will not cause an unacceptable increase in beyond the installation boundary.

Other than the external ~~€~~ tank the changes to the process are process is entirely within the enclosed purpose-built facility. This tank will use existing pumping and conveying equipment. There are therefore no new external noise or vibration sources being added to the permit as a result of this permit variation and consequently no change to noise profile of the site as a result of proposed changes.

Whilst the need for a noise and vibration management plan has not been identified as being necessary the emphasis in the management of noise from the site is on prevention during ‘normal’ day to day operations, and as such preventative maintenance, management, monitoring and inspection of all routine potential sources of noise.

The site has a responsible approach to noise under its occupational health and safety arrangements and periodically assesses noise levels and exposure from this perspective. These assessments have not identified any areas of the site that should be subject to hearing control. In the view of the operator and local EA inspector noise is not considered a significant issue. The existing noise control measures to protect on site personnel are therefore considered sufficient and no additional measures are considered necessary at this time.

5. Application Form C2, Section 5b.

A new area of land is being added to the permitted installation boundary but only a very brief assessment of the condition of the land is included within the Environmental Permit Variation Application supporting document – “There is no change to the risk to land, surface water and groundwater as a result of this variation. The Site Condition Report submitted as part of the 2020 variation will apply to the modified footprint of the installation covered by this variation”.

i. Demonstrate how the Site Condition Report submitted as part of the 2020 variation applies to the new area of land to be added to the permitted installation.

ii. Demonstrate the condition of the new area of land to be added to the permit installation.

NOTE: Should the new area of land to be added be totally the area of the QC laboratories and should the addition of the QC laboratories no longer remain within the scope of this permit variation (as per response to question 4iii), no assessment of site condition is required.

See section 3. By agreement it is demonstrated that the QC labs are considered as being outside of the scope the regulated installation

6. Application Form C2, Section 3d.

No summary of your environmental management system has been submitted.

i. Submit a summary of your environmental management system.

The site operates an environmental management system is in place that has been certified to ISO14001:2015. The system includes the following:

- Roles and responsibilities for all aspects of the EMS are documented. The Senior Management Team are committed to implementation and the resourcing of the EMS. The site lead has ultimate responsibility for ensuring the EMS is resourced appropriately.
- The systems takes account of risks to the environment, applicable legal compliance and the needs/interests of stakeholders. An Environmental Policy is in place
- The EMS provides the framework for objectives and targets to be set related to the site's significant aspects. KPIs are in place related to environmental performance and compliance. Management system procedures, process procedures and SOP's for all activities are documented and trained out to relevant personnel. This includes appropriate checks and balances to ensure compliance with company arrangements together with corrective and preventative measures as required to deliver on EMS objectives and reduction of environmental risk.
- The organisation of environmental training across the site includes overarching general environmental training against a competency and specific operation control environmental procedures
- Internal and external communications procedures in place and the site consults with all employees from a SHE perspective.
- The EMS defines the operational control and record requirements of the system and operational planning and process controls are in place as part of the EMS and the wider governance programme for the site. Records are kept of all monitoring parameters, checks, inspections, training, audits, concerns and complaints, in accordance with current permit conditions.
- An electronic maintenance scheduling and response system is in place.

- Site Emergency Plans are documented, trained out and tested - The site is fenced to prevent unauthorised access and operates manned 24 hour security together with CCTV covering the facility.
- The site assesses fire and explosion risk as a part of its response to DSEAR, asset and fire protection. Fire prevention measures are employed to reduce risk to life and infrastructure to as low as is reasonably practicable. An accident plan is present on site which includes emergency procedures including environmental matters that is trained out to relevant personnel. Emergency response plans are subject to periodic testing and all critical response equipment are identified and inspected as part of a planned schedule. Contingency measures include access to key replacement plant and equipment in the event of breakdowns or unplanned events.
- Project Management processes consider environmental impacts through the project life cycle as part of the change management process which encompass the use of HAZOP studies where applicable.
- Environmental monitoring parameters are monitored including production, raw materials use, packaging use, incidents/spills, energy use, water use, product waste, solid waste, air emissions, effluent.
- Annual reports on KPI data allow for benchmarking across the sector. The operator reports to the Environment Agency as required in the current permit conditions.
- Regular site-based internal and 3rd party external audits of the EMS are carried out.
- Audits of compliance against the ISO14001:2015 standard and all legal requirements including the existing permit conditions are carried out periodically by an external consultant.
- Actions arising from audits or inspections or as a result of incident investigations are recorded and tracked to close out.
- Management Review procedure and process in place as part of the EMS

7. Application Form C3, Section 3, Table 3.

The Environmental Permit Variation Application supporting document does not provide a BAT (Best Available Techniques) justification for the additional processes being added to the installation – new reactor and new distillation column.

i. Provide a BAT justification in areas such as choice of new equipment, abatement technology, energy efficiency, waste generation for the new reactor and distillation column.

ii. Define the abatement used for discharges to air from Line 1 and Line 3 operation and demonstrate it remains appropriate for potential increases in production capacity and range of products.

NOTE: It is not sufficient to state that new equipment replicates existing equipment in a demonstration of BAT.

See attached Speciality Organic Chemicals Sector Guidance EPR 4.02 – BAT Assessment

8. Application Form C2, Section 6 – Environmental Risk Assessment.

The Environmental Permit Variation Application supporting document states “For the upgrade, no modifications to the external building are needed other than installing a newly constructed external bund within the existing permit boundary for the of [REDACTED] tank (T30). An internal wall will be moved, (which will involve taking additional space from the adjacent manufacturing area). Reactor 3 will be installed adjacent to reactor 2 (T25)”.

i. Confirm if this a new tank and new bund, if so, demonstrate they meet the construction, maintenance and capacity requirements of CIRIA C736 (containment systems for the prevention of pollution) available from link:

<https://www.ciria.org/ItemDetail?iProductCode=C736F&Category=FREEPUBS>

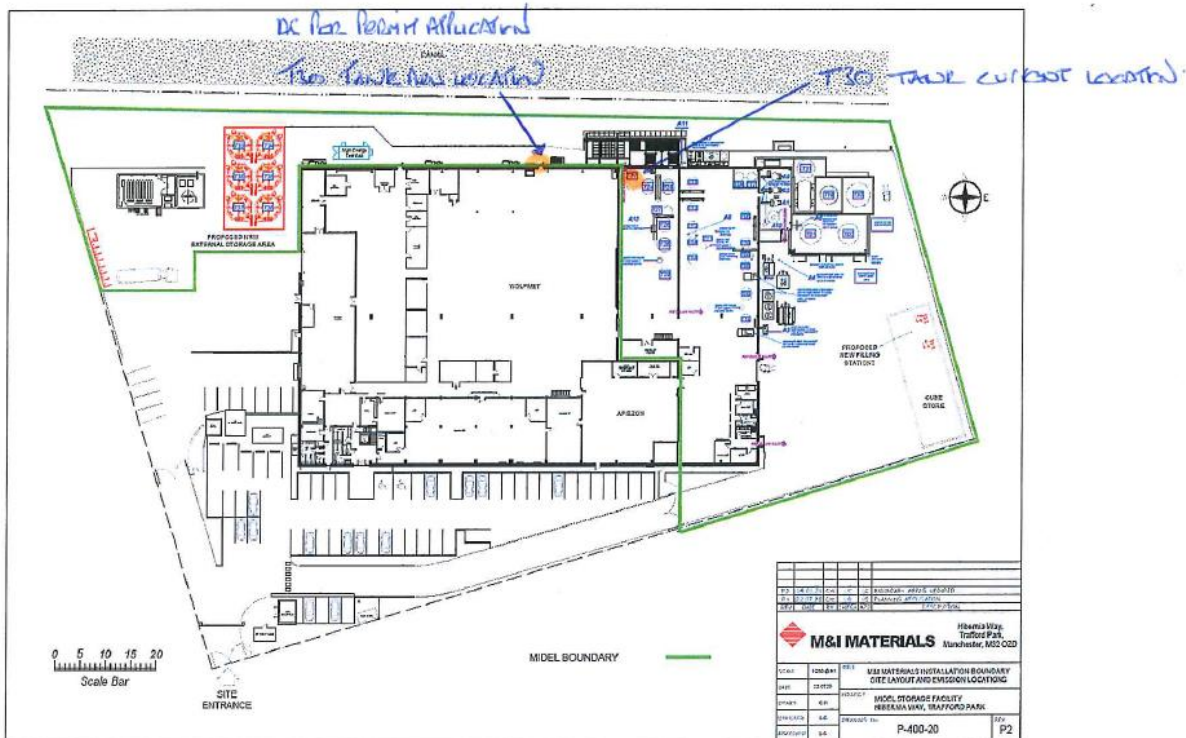
As highlighted in the original variation application supporting document the existing ~~CX~~ tank (T30) 12000 litre stainless steel tank will be moved to an external location within a purpose-built new epoxy coated chemical resistant concrete bund.

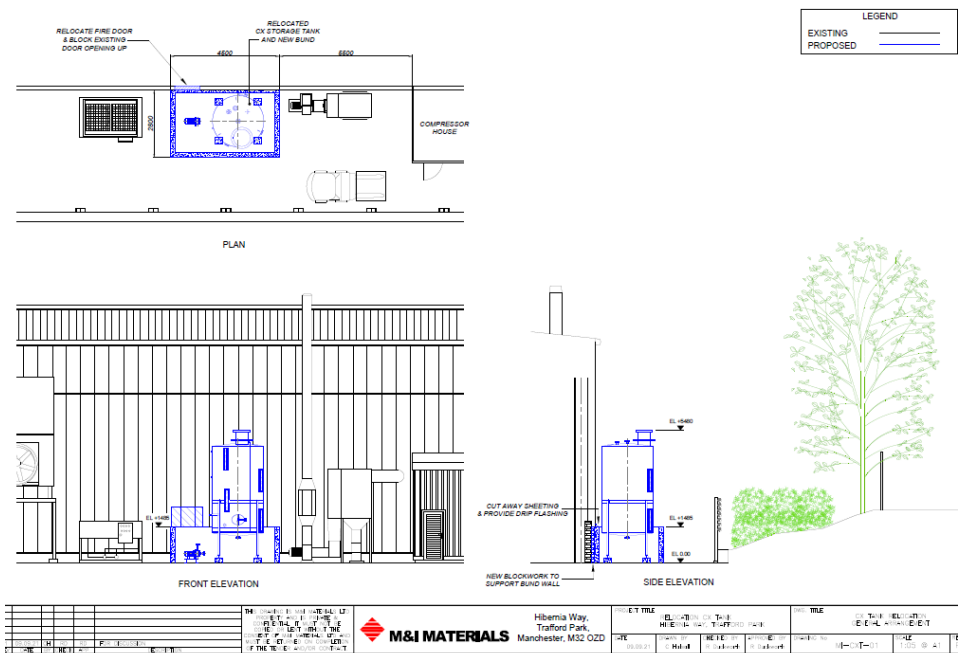
The tank will be placed within the engineered concrete bund designed to meet BAT (the specification and constructed methods comply with CIRIA guidance C736) and will be served by the existing tanker loading point which is already provided with appropriate containment.



The vessel is equipped with level controls, overfill protection and temperature monitoring all linked to a SCADA control system with monitoring and alarm functions.

Location of ~~CX~~ Tank:





As requested during the preliminary call a full tank inventory is provided below

Bulk Tank Inventory – See Drawing 1 submitted as part of the variation application

Ref	Purpose	Capacity Litres	Location	L1 / L2 / L3 Shared	Potential Emissions & Control Technique
T1	Fatty acid Storage		External	Shared	Passive breathing via vent
T2	Fatty acid Storage		External	Shared	Passive breathing via vent
T3	Fatty acid Storage (2 tanks)		External	Shared	Passive breathing via shared vent
T4	Fatty acid Storage		Internal	M1	Passive breathing via vent
T5	Recovered Acid		Internal	M1	-
T6	Reactor		Internal	M1	Emission to atmosphere via condenser
T7	Evaporator Holding Tank (EHT)		Removed in 2015 and replaced by ref T18		
T8	Evaporator		Internal	M1	Emission to atmosphere via condenser and vac pump
T9	Purification		Internal	M1	Emission to atmosphere via vac pump
T10	Holding Tank		Internal	M1	-
T11	Recovered Acid		Internal	M2	See T5
T12	Reactor		Internal	M2	Emission to atmosphere via condenser
T13	Evaporator		Internal	M2	Emission to atmosphere via condenser and vac pump
T14	Purification		Internal	M2	Emission to atmosphere via vac pump
T15	Holding Tank		Internal	M2	-
T16	Reactor		Internal	M2	Emission to atmosphere via condenser
T17	Fatty acid storage		Internal	M2	Passive vent internal bund

T18	Reactor		Internal	M1	Emission to atmosphere via condenser
T19	Bulk FG Storage 1		External	shared	Passive vent external bund
T20	Bulk FG Storage 2		External	Shared	Passive vent external bund
T22	Bulk FG Storage		External	Shared	Passive vent external bund
T23	-		-	-	-
T24	Reactor		Internal	M3	Emission to atmosphere via condenser & scrubber
T25	Reactor		Internal	M3	Emission to atmosphere via condenser & scrubber
T26	Evaporator		Internal	M3	Emission to atmosphere via condenser and vac pump
T27	Recovered Acid		Internal	M3	-
T28	Purification		Internal	M3	Emission to atmosphere via vac pump
T29	Holding Tank		Internal	M3	-
T30	Fatty acid Storage		External	M3	Passive vent external bund
T31	Bulk FG Storage		External	Shared	Passive vent external bund
T32	Bulk FG Storage		External	Shared	Passive vent external bund
T33	Bulk FG Storage (new)		External	Shared	Passive vent external bund
T34	Bulk FG Storage (new)		External	Shared	Passive vent external bund
T35	Bulk FG Storage (new)		External	Shared	Passive vent external bund
T36	Bulk FG Storage (new)		External	Shared	Passive vent external bund
T37	Bulk FG Storage (new)		External	Shared	Passive vent external bund
T38	Bulk FG Storage (new)		External	Shared	Passive vent external bund
T39	Reactor		Internal	M3	Emission to atmosphere via condenser & scrubber
T40	Distillation Column		Internal	M1	No Vent

9. Application Form C2, Section 6 – Environmental Risk Assessment.

The Environmental Permit Variation Application supporting document states “With the exception of a new dedicated acid loading system, which is being installed to increase the efficiency of operations, the process will remain the same as that of the existing two reactors with batches being loaded in turn and transferred down the production line”.

Insufficient information has been provided on the construction, risks and risk management from this new dedicated acid loading system.

i. Define the location, mode of operation, environmental risks and environmental risk control for the new acid loading system.

Currently, there are two fully automated loading systems; one services all three lines and one delivers ████ to Line 3. The intention is to decouple the dependence of Line 3 loading on Line 1 and 2 timings and install a further loading system. This will reside adjacent to the Line 3 reactors. Line 3 will operate as it does now but with its own dedicated loading systems.

The proposed loading system is a duplication of the current system. The acid loading process and recipe is completely automated and fluid is transferred from the bulk storage tank directly to the reactor. HAZOPs have been conducted for this option. The acid loading process and recipe is completely automated and fluid is transferred from the bulk storage tank directly to the reactor.

Whilst the variation application includes an option for this additional acid loading system however, depending on the scheduling of production this system may not be implemented.

ii. Define the acid being loaded.

See above.

iii. Confirm if it is ~~CX~~ acid tank (~~T30~~) from which the acid is being loaded and, if so, confirm which tank.

In relation to the ~~CX~~ tank there is no additional risk from handling a higher volumes of material as the existing, proven control measures will be used.

10. Application Form C2, Section 6 – Environmental Risk Assessment.

The Environmental Permit Variation Application supporting document states “the operator may opt to change how the existing bulk tanks within the installation are deployed for raw material and/or product storage in response to demand”.

i. Demonstrate what management of change processes have been carried

The changes introduced as part of the previous variation (2020) included the installation of additional bulk tank farm. This has released a former finished product storage tanks for redeployment within the facility for use as alternative storage. Although there is some flexibility in deciding which material is contained within it, the change would be a permanent alteration to its function.

The material of construction of all tanks (stainless steel) is suitable for both all raw material and finished product storage. This is demonstrated by industry knowledge of materials compatibility and the experience of M&I Materials. The redeployment of a tanks within the installation is managed as a dedicated project for which specific HAZOPS are undertaken to manage the transition and the repurposing of the tank. Any change would be permanent and would be managed through such a process. The change would be subject to prior notification and in agreement with the local EA officer.