

Fire Prevention Plan

for

Plasterboard Recycling Solutions Limited

at

Gypsum Recovery Facility, Thruxton

Permit Number: EAWML 402972

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Attachments

Fire Control Equipment.....See External Site Plan of MS

Storage of Materials & Fire Equipment.....See Internal Site Plan of MS

Sensitive Receptors.....See Pages 15 & 16 of DMP

Paper Flammability Test Report.....Available, if required

1. Introduction

Plasterboard Recycling Solutions Limited (PRS) is a wastes management company established to provide a recovery and recycling option for producers of plasterboard waste, including construction and demolition operators, local authorities, wastes transfer stations, civic amenity sites, etc.

PRS also operates a Gypsum Recovery Facility at Totternhoe, Bedfordshire.

At Thrupton, all plasterboard waste reception and treatment, and all storage of end products takes place within a large hangar, which is constructed of steel with a sealed concrete base. The building is carefully sealed to minimise the risk of escape of gypsum dust.

The permitted area includes an access point to the aerodrome's metalled road/taxiway system that provides a connection to the A303, and an area of hard standing for the manoeuvring of delivery/collection vehicles, the location of a site office, parking for staff and company vehicles, storage of containers and operational resources, etc.

PRS achieves the level of segregation necessary to meet recycling and reuse standards for its products primarily by means of bespoke crushing and sorting machinery, which it has developed over several years of practical experience. Effectively, the plant shreds and crushes the plasterboard, separating the paper from the powdered gypsum, and magnetically removing nails and other ferrous contaminants.

Additional supporting plant and equipment (screens, air separators, etc.), enable a small team of fully trained operators to convert waste plasterboard products to beneficial use.

Important Note about this Plan

This Fire Prevention Plan is required because the Bespoke Environmental Permit applied for allows for a wide range of waste types to be received and processed, many of which materials would be flammable.

However, PRS is only proposing to accept plasterboard wastes, and will limit its operations to the receipt of gypsum-based construction materials (EWC code 17 08 02) by means of its Management System.

Plasterboard and its constituent components are generally non-combustible (in fact, plasterboard is used as a fire retardant in buildings); even the paper backing, once separated from the gypsum, is very difficult to ignite after it has been treated via the plant, due to the fact that the shredding and crushing processes, which are designed to remove as much of the gypsum as possible, actually result in all surfaces of the resultant small pieces of paper becoming coated with fine gypsum powder. This is very different from the result of simply tearing strips of paper from whole plasterboard sheets, which results in virtually no gypsum attaching to the paper, thereby allowing limited combustion to take place.

Given concerns raised about the potential risk of fire from paper, PRS has arranged for a representative sample of post-treatment backing paper to be subjected to Flammability Testing by an accredited laboratory; the results proved this material to be non-flammable, and the test report is attached as Appendix 4.

If PRS decides in the future to use the wider potential of the Environmental Permit, then it is fully aware that it would need to submit a fully revised Management System and Fire Prevention Plan to the EA for approval before changing its operating practices.

2. Location

The site is located at:

**Gypsum Recovery Facility Thruxton
Thruxton Aerodrome
Unit T2, Hangar 14
Thruxton
Andover
Hants.
SP11 8PW**

National Grid Reference: SU 28051 45372

Unit 2, Hangar 14 was formerly an aircraft hangar, but now forms part of a small industrial estate, which is situated approximately 400 metres south of the intersection of the runways, approximately 900 metres west of the centre of the village of Thruxton, and approximately 300 metres north of the A303 trunk road.

The site is connected to the A303 by a network of substantial, metalled roads that form part of the Thruxton Aerodrome and Race Circuit complex, thereby providing safe access and egress at all times for large goods vehicles, emergency vehicles, etc.

3. Site Description

See Appendix 2 for a plan of the Permitted Area.

- 3.1 There are no known watercourses, boreholes or wells within 100 metres of the Permitted Area.
- 3.2 Most of the Permitted Area is occupied by the hangar/process building, whilst the external areas consist of concreted surfaces.
- 3.3 There is an unused and sealed underground septic tank located in front of the hangar entrance, as shown on Appendix 2, which appears to have been connected to facilities that no longer exist within the hangar.
- 3.4 There are two systems for dealing with surface water arising on site; both are located within the external yard, and allow for suspended solids to settle before releasing clear water. It is proposed to collect and store some of this water, together with rainwater from the roof, for potential use in dust suppression and fire control.
- 3.5 Currently there are no known drain covers or pollution control features on site.

3.6 A Quarantine Area for use in the event of a fire is located centrally within the external yard as shown on Appendix 2; further information is provided at paragraph 9.18 of this document.

4. Waste Types and Handling

- 4.1 The permit allows the site to accept up to 175ktpa. Arisings of plasterboard are not seasonal, so this would result in an average input of 3,365 tonnes per week, say approximately 560 tonnes per day.
- 4.2 Paperwork for all waste loads received is checked for conformity with the site limitation of 17 08 02 only. Non-conforming loads will be rejected. If the paperwork is correct, the load will be tipped inside the hangar, within the Reception Area (see Appendix 1), where it will be inspected for conformity. In the event of contrary material being discovered at this stage the TCM will decide whether to reject and reload the whole or part of the delivery, or if the contrary material is within acceptable limits, and may be dealt with as part of standard site operations.
- 4.3 Once accepted, any non-conforming materials shall be removed, segregated and deposited into the General Waste, Wood, Hardcore or Scrap Metal Containers, before the remainder is either directly loaded into the Sorting & Treatment Plant or stockpiled pending processing.
- 4.4 Waste plasterboard shall be stockpiled within the Reception Area and/or within one of the concrete Storage Bays - see table at 5 below.
- 4.5 Two categories of end product are created - Gypsum and Backing Paper; these are stockpiled, as required, in bays at the end of their processing line or in one of the concrete Storage Bays. See the table at 5 below for storage capacities and durations. The actual quantity and location of stored waste and products will vary from time to time, depending upon fluctuations in supply and demand, but the table and Site Plan give an indication of the maximum storage duration and capacity of materials.

5. Storage of Materials - Quantities & Duration

Type of Material	Quantity (tonnes)	Quantity (m ³)	Duration
Waste Plasterboard (EWC code 17 08 02 only) - non-combustible	1600	3200	2 months
Gypsum (PAS 109) - non-combustible	1000	2000	2 months
Backing Paper - non-flammable	1000	2000	2 months
Mixed non-conforming wastes	10	30	2 months
Hardcore	10	20	2 months
Wood (coated with gypsum, thereby reducing fire risk)	5	30	2 Months
Scrap metal	4	5	2 months

- 5.1 Given that both the incoming waste and its derivative products are non-combustible or non-flammable, it is not considered necessary to allow for fire breaks or fire walls. Most materials will be stored within concrete walls and bunkers (see Appendix 1), and the building is constructed entirely of steel (both frame and cladding) upon a solid concrete base.
- 5.2 Non-conforming general wastes removed from the incoming plasterboard are placed into a covered 30m³ Rolonof container for periodic collection; this container is located outside the Hangar, as shown on Appendix 2.
- 5.3 Wood waste recovered from incoming waste will be coated in gypsum, reducing the risk of catching fire; it will be removed and placed in a covered 30m³ Rolonof container for periodic collection; this container will be located outside the Hangar, as shown on Appendix 2.
- 5.4 Scrap metal will be largely recovered in the form of nails and fixings by the over-band magnets; this material will be stored in a skip pending periodic delivery to a permitted metal recycling company.

- 5.5 The 2-month maximum storage duration is intended to allow for operational problems (plant breakdown, bad weather, etc.) or fluctuations in the supply of raw materials and the demand for end products, which are subject to vagaries of the marketplace. Under normal supply and demand conditions, waste plasterboard will be processed, as soon as possible after receipt, into gypsum powder and backing paper, which will be supplied to end-users within a week or two of production.
- 5.6 The Reception Bay will be emptied regularly by the continuous processing of incoming loads.
- 5.7 Emptying of bays shall be recorded in the Site Diary.
- 5.8 The storage capacities are based upon a density for plasterboard/gypsum products of 0.5 tonne per cubic metre, which is an approximation affected by moisture content, amount of compression achieved by handling activities, etc.
- 5.9 Even if the products do have to be stored for up to two months, it is not considered that it would be necessary to rotate stockpiles, because they are neither biodegradable nor combustible; they are stable materials that do not deteriorate or generate heat under long periods of dry storage. It is beneficial not to disturb stockpiled gypsum products, due to the fact they consist of very fine dust, which readily becomes airborne when moved, creating environmental and H&S hazards. Gypsum is not liable to self-combust.
- 5.10 Storage quantities and usage of bunkers for the various materials will vary according to supply and demand, but the following gives an indication of a typical distribution of stored waste and products at maximum capacity (a very unlikely situation):
 - Area 1 Bunker: 800 tonnes of gypsum powder.
 - Area 2 Bunker: 1,700 tonnes of backing paper.
 - Area 3 Bunker: 200 tonnes of gypsum powder.
 - Area 4 Bunker: 1,600 tonnes of waste plasterboard.
- 5.11 The bunkers shown on Appendix 1 are indicative of the layout of the site at any given time; both the bays and their usage will vary from time to time according to operational requirements.

6. Description of Process

The process is designed to remove residual non-conforming materials (predominantly metal fixtures and fittings) that are attached to the plasterboard, and then to separate as much as possible of the gypsum from the backing paper. Contrarily, the shredding and crushing actions, designed to remove the majority of the gypsum, result in the freed paper becoming coated with fine gypsum powder. The process consists of the following:

- 6.1 A slow-speed shredder reduces particle sizes to <45mm.
- 6.2 An overband magnet removes ferrous metals.
- 6.3 Rubber belt conveyor to a vibrating inclined perforated deck-screen to remove <10mm.

- 6.4 The oversize (>10mm) passes through a mill (2 rotating steel drums with a narrow gap - similar to a mangle).
- 6.5 Rubber belt conveyor via a second overband magnet to a second deck-screen to remove <6mm.
- 6.6 The oversize (which largely consists of paper coated in gypsum) is dropped through a zigzag air separator, which blows air up through the descending material to separate free gypsum powder from the paper.
- 6.7 Paper is pushed by loading shovel into Bunker 1.
- 6.8 Gypsum will be removed to storage by loading shovel, according to particle size, in one of the remaining bunkers.

7. Potential Sources of Fire

Although the waste received and resultant products are not considered to constitute a fire risk, other threats exist that require prevention and control measures, as follows:

- 7.1 **Mobile Plant (loading shovels, telehandlers, etc.).** These will be new/modern and shall be subject to maintenance to manufacturers' standards. Operators shall be fully trained to undertake daily safety inspections and to be alert at all times for any sign of fire risk. All mobile plant shall be fitted with appropriate fire extinguishers that shall be maintained annually.
- 7.2 **Main Sorting Plant.** This consists of some complex machinery, including motors, gearboxes, electromagnets, fans, rubber belts, etc., all of which have the potential to overheat, burn out, or otherwise cause fire if not properly inspected and maintained. Fully trained staff will undertake daily inspections and maintenance to ensure that this plant performs safely to the manufacturers' standards at all times. In addition to the planned maintenance programme, all staff will be trained to be vigilant in identifying any early signs of failure or potential fire risk. An appropriate number and type of fire extinguishers shall be strategically placed around the plant (see Appendix 2); these will be subject to an annual maintenance contract.
- 7.3 **Electrical Infrastructure.** All site electrical systems shall be checked and inspected regularly by an appropriately qualified electrical engineer, thus ensuring that all electrical safety regulations and associated best practice are adhered to at all times.
- 7.4 **Site Office and Welfare Cabin.** These are located in two portacabins (see Appendix 2), external to the hangar, and include administration facilities for site operations and welfare facilities for site staff and visitors. All electrical equipment (computers, printers, kettles, ovens, toasters, shower heaters, etc.) will be subject to daily checks by site staff and periodic safety inspection by the electrical engineer. Annually maintained fire extinguishers shall be provided in both the office and welfare cabins. A fire blanket shall be provided adjacent to the cooking equipment.
- 7.5 **Diesel and AdBlue Tanks.** These products are stored in approved, bunded, above-ground tanks, which are located away from the hangar (see Appendix 2)

on the northern side of the hard standing area. Annually maintained appropriate fire extinguishers are provided adjacent to these tanks.

- 7.6 **Gas Bottle Storage Cage & Hot Works.** A completely enclosed and lockable steel cage is located just outside the vehicle entrance (see Appendix 2) on the external hard standing area; it is used to secure approximately three oxy-acetylene cylinders that are used occasionally on site by experienced site staff. Appropriate fire prevention and control measures will be used at all times whilst hot works are taking place on site.

8. Fire Prevention

- 8.1 The TCM or their nominated and fully trained deputy undertake a full site inspection at the start and end of every working day; this forms part of their normal site safety inspections, but involves paying particular attention to any risk of fire around the site, and taking appropriate preventative actions, if necessary.
- 8.2 In addition, all site staff are trained to be constantly vigilant for any signs of fire risks on site, and to immediately report matters of concern to the TCM or their deputy.
- 8.3 The hangar building is fully enclosed, with substantial lockable doors at all openings. The external yard is secured by means of 2.4 metre high steel palisade fencing, with lockable entrance gates of similar construction.
- 8.4 During operational hours, all site are trained to challenge any unauthorised visitors to the site; the site entrance is overlooked by the Site Office, where all visitors have to report before entry.
- 8.5 A CCTV system is installed, providing an overview of the site perimeter and main operational areas; this allows for live on-site and remote monitoring of site activities. 24/7 recordings are stored for seven days.

9. Fire Control Measures

- 9.1 As the waste and other derivative products stored on site are non-combustible, it is considered that the risk of fire is very low, and that if a fire did occur it is likely to be relatively small, isolated and manageable.
- 9.2 A fire hydrant is located within 30 metres of the south-western corner of the site (see Appendix 1); the landlords have confirmed that this would be available to their own fire and rescue service and the local fire service in the event of an emergency.
- 9.3 Fire extinguishers are fitted to all mobile plant and are located strategically around the site (see Appendices 1 & 2).
- 9.4 In the unlikely event of a fire occurring on site, gypsum powder could be removed by loading shovel from one of the product storage bays and could be used to extinguish the fire.
- 9.5 Manual fire alarm bells are located at strategic points around the site.

- 9.6 All hot works on site are subject to the issue of a Hot Works Permit by the Site Manager/TCM; this document will specify all of the precautions required to prevent fire whilst the works are taking place.
- 9.7 Direct access to the site is provided for fire and emergency services via the A303 and metalled internal roadways.
- 9.8 The aerodrome and race circuit have their own fire and rescue service; this is owned and operated by the landlords, who have confirmed that such services would be available to its tenants, including PRS, in the event of a fire.
- 9.9 All site staff are fully trained in fire prevention and control measures; they are trained to look for potential problems that could lead to a fire; the correct procedures for raising the alarm in the event of a fire or similar emergency; how to use fire fighting equipment; the location of the Fire Assembly Point; how to check the Site Register and ensure all personnel are accounted for; etc.
- 9.10 All contractors and visitors on site are given induction training appropriate to their purpose for being on site; such training includes fire awareness and procedures to follow in the event of a fire.
- 9.11 There is a 'No Smoking' policy across the site.
- 9.12 No burning is permitted on site.
- 9.13 No space heating or industrial heaters are used within the main building.
- 9.14 The only neighbouring business immediately adjacent to the site is a pallet repair company, which offers a negligible fire risk to PRS, given the metallic structure of its building and the non-combustible nature of the products it handles.
- 9.15 Plasterboard and its derivative products are non-combustible, so they are not subject to self combustion.
- 9.16 A Quarantine Area is shown on Annex 2; this could be used to safely store burning waste, pending the application of appropriate fire control measures. The only place that material could be stored with a minimum separation of 10m on all sides would be in the middle of the external yard.

10. Contingency Measures in the Event of a Fire

- 10.1 Clearly, in the event of a fire on site, all deliveries would be diverted and operations would cease until such time as the Fire Service/EA confirmed that the situation was safe, and that normal activities could be resumed.
- 10.2 The site has no contractual obligation to accept waste, but PRS would immediately contact all anticipated deliverers, advising them that the site was temporarily closed. Carriers/producers would be told that they could divert to PRS's Totternhoe site in Bedfordshire or to Roy Hatfield Ltd. in Rotherham; alternatively, carriers/producers would be at liberty to divert to alternative appropriate disposal/treatment plants of their own choosing.
- 10.3 As soon as the site was allowed to resume operations, PRS would contact all of its clients to advise them accordingly.

11. Pollution Prevention in the Event of a Fire

Pillhill Brook is shown as running from west to east over 100 metres to the south of the site, but PRS has observed that no running water has been present in the bed of this brook for at least 250 metres from the permitted area during the six years that PRS has occupied the site. Even during times of prolonged heavy rainfall and flooding, no running water has been seen. Nonetheless, PRS takes all necessary precautions to prevent, as far as practically possible, the chance of any environmental harm occurring if a fire does occur; such measures include the following:

- 11.1 The floor of the hangar is concreted; the whole of the superstructure has been re-clad to match the western end, which was rebuilt a few years ago; the eastern end has been fitted with new fast-acting doors and new cladding. In order to prevent the escape of dust, all joints between the internal concrete floor surface and the new wall cladding have been sealed; this has the added benefit of retaining any liquid that may be used in the unlikely event of a fire. Given the fact that the waste and products stored are non-combustible, the likelihood is that a fire will be small and manageable with portable fire extinguishers and/or very little water. Also, gypsum is very absorbent, so the chance of water escape would be further reduced.
- 11.2 If a fire occurs, and fire water is accumulated on site, appropriate measures will be taken to ensure that the water is evaluated for contamination, and appropriate measures taken for its safe disposal.