

GALCO CORK LTD.

TRAMORE ROAD,

CORK

P0391-01

Housekeeping Procedure

November 2022

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1.0 Introduction

This procedure aims to promote and outline good housekeeping practices in relation to operations performed at Galco Cork Ltd. and aims to prevent the transfer of contaminants from indoor to outdoor areas and to prevent the contamination of the environment.

The operations at Galco Cork Ltd. inevitably produce a number of waste streams and waste emissions. These include atmospheric emissions, both hazardous and non-hazardous waste liquids and waste solids, diffuse emissions from storage of materials, product and equipment, diffuse emissions from hardstanding concrete areas.

In addition housekeeping is vital in relation to Health and Safety. Poor housekeeping practices can lead to accidents in the workplace, for example accidents relating to slips, trips and falls.

Some key areas on the Galco Cork Ltd., site in relation to housekeeping include;

1. Internal Areas and External Hardstanding Concrete Areas

The white yard area which is the storage location for finished product has been identified as the predominant possible source of zinc runoff to surface water. The yard is the single largest open area vulnerable to collection of dust, which may have associated particulate zinc.

2. Finished Product Handling

The white yard area is used as the storage location for finished galvanised product. While the vast majority of zinc coating remains on the galvanised steel product, part of the external surface of the finished galvanised product could chip or flake off and some fine particulate zinc oxide and soluble zinc salts can be washed off when the metal is stored externally and exposed to rainfall which could possibly contaminate surface water or ground water.

3. Jigs

Steel items to be galvanised are attached by steel wires to a jig which is then attached to a crane for movement through the galvanizing process. During this process jigs are inevitably splashed with pickling solution, flux solution and molten zinc. Encrusted zinc salts and other soluble complexes and loosely bound particulate zinc will build up over time on jigs. These jigs are moved frequently resulting in solid zinc compounds becoming removed which may then come into contact with rain water or surface water in the yard. When this happens, the presence of water, acid and zinc may lead to dissolved zinc, which may enter the surface water drains.

4. Dross Ploughs

Galvanizing residues such as dross is a by-product formed in the kettle. Dross is formed from three distinct sources;

- Iron salts formed by a reaction between pickling agents and steel (pickle salts) which can be carried into the kettle.
- Iron salts formed by a reaction between flux and steel
- Zinc/iron alloys formed by a direct reaction between steel and molten zinc

Generally dross particles form and settle to the bottom of the kettle resulting in dross build-up, which requires frequent removal. The dross plough is lowered to the dross level and moved along the length of the kettle to scoop up dross which is placed in a mould. Upon cooling and hardening the dross blocks are removed from the moulds and stored on site while pending collection from the site. Residue from the zinc dross containing crystallites of the Fe-Zn phase will build up over time on the dross plough which may then come into contact with rain water or surface water in yard.

5. Surface Water Drains and Interceptors

Sediment which may contain zinc can build up in sub surface water drains and gullies. This sediment can act as a restriction reducing the velocity of the surface water draining through the system. A sufficient surface water drainage velocity is required to flush washed down material through the system, otherwise an ever increasing buildup of sediment can occur overtime. Heavy rainfall occurrences in time could then dislodge part of this sediment which may contain zinc which then could possibly have a negative acute effect on the quality of surface water discharged from the site. Therefore it is important to have clear drains on site.

There is an appropriately sized working oil separator/interceptor at the Galco Cork Ltd. site. The interceptor unit forms an integral part of the onsite management of surface water. Regular maintenance and emptying of the interceptor will be required.

During the surface water weekly visual inspection the designated employee who will inspect this is to take a sample in a clear bottle and check for any colloidal zinc or discoloration which may indicate some suspended solids.

6. Bag Filter

Fumes and PM_{10} emissions (particulate matter with an equivalent aerodynamic diameter of 10 micrometres or less i.e. $\leq 10\mu m$) result from the hot dip metal coating activities at the galvanizing bath. The initial stage of dipping leads to the majority of the fume generated. The high temperature of the galvanizing bath (approximately 450°C) means that this fume can reach dew point quickly upon contact with cold ambient air mass and so precipitate on surfaces such as roofs, vents, jigs and external yard areas as highly soluble zinc chloride and ammonium complex salts and as insoluble sub-micron particulate zinc oxide. The fume created during the hot dip metal coating process is extracted from the zinc bath and vented through an automatic reverse jet type bag filter. In brief, the accumulated powder (from the dust laden air intake) inside the filter bags is dislodged and then falls onto a bottom cone and is subsequently discharged to barrels. The dust free air is sucked by induced draft fan and is exhausted to the atmosphere through a 0.65m diameter stack at an elevation of approximately 13m.

7. Storage and Space

Adequate space is required to allow work to be performed efficiently, in a safe manner and in an environmentally friendly manner. Lack of space can lead to possible congestion of people, materials and vehicles coming together. All areas should be clean, tidy and organised.

Storage should be suitable in terms of design, size and in good condition. Items should be stored as close as possible to the area of work which will aid in efficiency, requiring less distance for carrying and will be easier for staff to work with. Hazardous chemicals, materials and waste should be stored in bunded areas. Where required, inspections should be performed on storage areas. Bunded areas should undergo a bund integrity test approximately every three years.

When goods, products, equipment, materials, chemicals and waste are placed in correct areas for storage and retrieval it helps to ensure that work and work procedures are performed efficiently. However when stored in areas not designed for storage it can lead to damage, such as damage to other goods, materials, equipment and infrastructure, can lead to blind spots, can cause collapses, can cause spillages, can lead to possible accidents and can lead to possible environmental incidents.

Items should never be stored in a manner that would cause obstructions at entry and exit points. This could lead to slow egress during an emergency and could hinder emergency response personnel.

8. Waste

Waste must be dealt with by the company. The environment around us consists of land, air and water. A hierarchal system, as outlined below, exists to deal with waste.

- Prevention of waste, wherever possible to do so, is the top priority. The less waste produced the greater the return on goods.
- Reduction would be the next objective, again the less waste the better.
- Reusing materials is also a better option than simply disposing of materials as it is still providing a possible resource.
- Recycling and Recovery involves the turning waste into a new substance or product. In the metal industry this can be a source of income to a company as waste metal is a form of raw material.
- Energy Recovery could involve sending waste for incineration with energy recovery.
- Disposal of waste is the least desirable meaning materials are left, following these measures taken, leaves Waste.

In terms of facilitating a waste hierarchy structure, different types of waste streams should be separated and kept segregated e.g. metal skips provided to separate metal for recycling.

A wire baler aids in the assistance of waste management. The wire baler forms used jigging wire into dense and consistently shaped bales for easy storage and transport. This process reduces loose waste on site, reduces the volume of the material, reduces the storage space required, reduces the frequency of collection which in turn reduces transportation costs and increases overall resale value.

Waste should be stored in a manner that provides protection from the elements of weather, while awaiting removal from the site.

Efficient removal of waste from the site can help to reduce the risk of fire, reduce the risk of a possible environmental incident, keep vermin and pests under control, free up storage space for future waste generated, reduces clutter and associated safety risks and overall provides for a cleaner, tidier, safer and a more efficient workplace.

Collection of waste should be performed by an authorised / permitted / licensed collection company and end disposal / recovery of waste should be performed by an authorised / permitted / licensed facility. Records of waste collection authorisations and disposal / recovery authorisations, e.g. permits and licences shall be requested, compiled and maintained on site.

2.0 Responsibilities

Senior Management are responsible for the following;

- Ensuring all employees are aware of procedures to be employed in relation to housekeeping.
- Assigning of duties and activities to be performed in relation to housekeeping.
- Ensuring that housekeeping activities are being performed and completed.
- Ensuring all logs documenting the performing of housekeeping duties are filled out and completed.
- To follow up on insufficient housekeeping practices and to implement corrective actions for same.
- Ensuring that all necessary resources are provided in maintaining good housekeeping standards and practices.

Business Manager – John Conroy

Group EHS is available for any support required.

3.0 Sweeping of Internal and External Areas

3.1 Internal Areas

1. The internal work area is swept using yard brushes at the end of each shift.
2. The swept material is collected and disposed of into the relevant skip.
   Sweepings containing zinc are placed into a zinc barrel to be placed in the zinc burnoff furnace for zinc recovery which can be placed back into the galvanising process.
   Sweepings containing other general metals are disposed of into the metal skip.
   Any other swept material is disposed of into a general waste skip.
3. At the end of each shift the "*Daily housekeeping Log"* is to be completed. Refer to Appendix A for an example of the "*Daily housekeeping Log"*.

3.2 External Areas

1. A forklift mounted mobile sweeper is deployed on site at the beginning and end of each day & evening shift to sweep all hardstanding concrete areas. A designated member of staff on each shift has been assigned this duty.
2. The zinc sweepings are transferred to a UN approved FIBC and are sold as part of the zinc chippings / skimming's to FBM Metals in the UK.
3. Sweepings of a non-zinc nature and any other debris or materials collected by the forklift mounted mobile sweeper are disposed of directly to a general waste ship collected by Greenstar.

   Sweeping operations will have the effect of reducing the amount of solid zinc and zinc dust/skimming's available for contact with the surface water.
4. At the end of each shift the "*Daily housekeeping Log"* is to be completed. Refer to Appendix A for an example of the "*Daily housekeeping Log"*.



4.0 Finished Product Handling

To minimise the risk of possible surface water contamination or ground water contamination from finished product, finished product handling and housekeeping procedures include the following;

1. File all the edges of all galvanised material indoors.
   Filing finished galvanised product is undertaken as a preventative measure to remove as much as possible any fine particulate zinc oxide and/or soluble zinc salts and/or any possible excess galvanising material which could possibly contaminate surface water and/or groundwater.
2. Ensure a prompt pickup and delivery of finished product to customers.
   This is seen as best practice to minimise any possible contamination in the white yard area.
3. The forklift mounted mobile sweeper can be deployed if required to remove any possible contamination and/or material left behind once finished product is removed from a collection bay.
4. The swept material is collected and disposed of as described in Section 3.0 of this document.

Image: Linishing of finished product being performed indoors in order to remove any possible excess zinc material which could possibly contaminate surface water and/or groundwater.



5.0 Cleaning and Storage of jigs

1. Cleaning of jigs is performed with the aid of a kango.
2. When required the cleaning of jigs takes place in an outdoor designated area of the site but only if the weather permits.
   This designated area is free from surface water drains and is fully kerbed to prevent run off migrating off site. This cleaning does not take place in times of heavy rainfall.
3. All chippings and deposits are bagged immediately as they have commercial value.
4. Jigs are stored on a racking system within the covered area of the factory.
   The racking system provides a system for the storage of jigs in a neat and orderly fashion and reduces the amount of space required for the storage of jigs.
   Storage of jigs indoors reduces the availability of dissolved zinc reaching surface or ground water.
5. At the end of each shift ensure all jigs are stored within the covered area of the factory. At the end of each shift the "*Daily housekeeping Log"* is to be completed. Refer to Appendix A for an example of the "*Daily housekeeping Log"*.

Image: Racking System for the Storage of jigs within a covered area of the factory



6.0 Storage and Cleaning of Dross Ploughs

1. Cleaning of dross ploughs is performed with the aid of a kango.
2. When required the cleaning of dross ploughs takes place in an outdoor designated area of the site but only if the weather permits.

   This designated area is free from surface water drains and is fully kerbed to prevent run off migrating off site. This cleaning does not take place in times of heavy rainfall.
3. All chippings and deposits are bagged immediately as they have commercial value.
4. Dross ploughs are stored on the plough stand within the covered area of the factory.
   Storage of dross ploughs indoors reduces the availability of dissolved zinc reaching surface or ground water.
5. At the end of each shift ensure all dross ploughs are stored within the covered area of the factory. At the end of each shift the "*Daily housekeeping Log"* is to be completed. Refer to Appendix A for an example of the "*Daily housekeeping Log"*.

7.0 SW & Interceptors Visual Inspections & Cleaning of SW Drains and Interceptors

1. A surface water visual inspection is performed weekly by a designated employee to satisfy Condition 9.1.2 of the Industrial Emissions Licence (IEL) P0391-01 and consists of the following;
   - A designated employee collects a sample of the surface water in a suitable container.
   - Visually inspect the quality of the surface water for any indication that contamination has taken place.
   - Indicators that contamination has taken place include the following;
     - Presence of any sediment
     - Presence of any colloidal Zinc
     - Evidence of any hydrocarbons present
2. The surface water visual inspection is to be recorded on the "*Surface Water Visual Log*". Refer to Appendix B for an example of the "*Surface Water Visual Log*".
3. Records of the visual inspections are held on site.
4. A visual inspection is performed weekly on the interceptor by a designated employee and consists of the following;
   - Check Inlets are in good structural condition.
   - Check that No Sediment, trash, or debris has accumulated and/or is blocking the inlet.
   - Check Outlets are in good structural condition
   - Check that No Sediment, trash or debris has accumulation and/or is blocking outlets.
   - Check the Oil Containment Chamber and if oil emptying is required. Check the oil absorbing pads for saturation.
   - Check the Sediment Collection Chamber and if sediment emptying is required.
   - Check the components of the system for any evidence of any Structural deterioration.
   - Check are there any spills or leaks evident.
   - Check is there any evidence of ponding water in any area draining to the system.
   - Check is there any evidence that water is not being conveyed through the system (i.e. blockages in the system).
5. The visual inspection performed weekly on the interceptor is to be recorded on the "*Surface Water Interceptor Visual Inspection Log*". Refer to Appendix C for an example of the log.
6. Records of the visual inspections are held on site.
7. The interceptor unit is emptied/cleaned when required by an external company using a vacuum tanker.

8. The emptied material from the interceptor units is end disposed of by an authorised/licensed company.
9. Drain clearing will be performed when required.
10. The drain cleaning waste material is end disposed of by an authorised/licensed company.

8.0 Fumes and the Bag Filter System

1. Refer to document titled "*Test Programme for Bag Filter*" which includes the following;
   - Establishes all criteria for operation, control and management of the abatement equipment to ensure compliance with the emission limit values specified in the IED licence P0391-01.
   - Procedures to assess the performance of any monitors on the abatement system and establishes a maintenance and calibration programme for each monitor.
2. The Zinc bath enclosure doors shall remain closed until the major emissions of fume have ceased. This will reduce fume emissions precipitating on roofs, vents and the external yard areas
3. The fume created from the zinc bath is extracted and vented through an automatic reverse jet type bag filter.
4. Releases to air from the chimney are directed vertically upwards and will not be restricted or deflected by the use of plates, caps or cowls.
5. Dust from the bag filter is discharged to barrels, located at the base of the bag filter bottom cone.
6. The full barrels are stored in a covered storage area on site awaiting collection from an authorised / licensed / permitted collection company.
7. Refer to the document titled "*Test Programme for Bag Filter*" which includes amongst other the following maintenance and Inspection Checks;
   - A check is performed daily on the quantity of material in the barrel.
   - Once filled with bag filter dust the barrel is removed and replaced with a new empty barrel.
   - Record the differential pressure (pressure drop) reading on the magnehelic gauge daily. The differential pressure gauge (magnehelic gauge) indicates when the filters within the bag filter unit require changing.
8. Use the "*Bag Filter Inspection Checklist*" to document Maintenance and Inspection Checks performed on the Bag Filter. Refer to the document titled "*Test Programme for Bag Filter*" for an example of the "*Bag Filter Inspection Checklist*".

9.0 Storage and Space

1. Goods, products, equipment, materials, chemicals and waste should be stored in the correct manner, in the correct location and in an organised and neat fashion.
2. Keep the storage area clean, tidy and organised.
3. Items should never be stored in a manner that would cause obstructions at entry and exit points.
4. Items should be stored as close as possible to the area of work.
5. Storage areas should be suitable in design and in good condition.
6. Where required inspections should be performed on storage areas.
7. Hazardous chemicals, materials and waste should be stored as appropriate and in bunded areas.
8. Bunded areas undergo a bund integrity test approximately every three years.
9. Jigs should be stored on the indoor jig storage racking.
10. Dross Ploughs should be stored indoors.
11. At the end of each shift ensure all dross ploughs, jigs and waste are stored within a covered area of the factory. At the end of each shift the "*Daily housekeeping Log*" is to be completed. Refer to Appendix A for an example of the "*Daily housekeeping Log*".

10.0 Waste

1. Separate skips/containers and storage areas are assigned for different waste streams.
2. Waste should be separated and kept segregated while awaiting removal from the site e.g. metal skips are provided to separate metal for recycling.
3. Waste generated should be disposed of into the relevant assigned skip/container.
4. Hazardous waste materials should be stored in suitable containers and in bunded areas. For example hazardous waste liquids/chemicals should be stored in Intermediate Bulk Containers (IBCs) and kept in bunded areas.
5. Zinc Chippings and Zinc Ash are placed into Flexible Intermediate Bulk Containers FIBCs. Bag Filter Dust is placed in metal drums. Zinc Chippings, Zinc Ash, Bag Filter Dust and Dross Blocks are all stored in assigned sections of a covered storage area, which provides protection from the elements of weather.
6. Used jigging wires are compressed and baled with the aid of a wire baler. The wire bales are then placed into the metal recycling skip which will reduce the possibility of zinc coming into contact with surface water.
7. Bins emptied regularly can help to reduce the risk of fire by keeping combustibles to a minimum, keep vermin and pests under control and also help to meet environmental-control conditions.
8. Once a sufficient quantity of waste is generated to justify collection, prompt arrangement for collection should be organised. Waste should not be allowed to build up on site.
9. Records of waste collection and disposal/recovery shall be maintained on site.
10. At the end of each shift ensure all waste is stored within a covered area of the factory. At the end of each shift the "*Daily housekeeping Log*" is to be completed. Refer to Appendix A for an example of the "*Daily housekeeping Log*".

Appendix A: Daily Housekeeping Log Form

Galco Cork Ltd. Tramore Road, Cork. P0391-01.				Daily Housekeeping Log				
Date	Day	Internal Sweeping Completed	External Sweeping Completed	All Wastes Stored Indoors	All Jigs and Dross Ploughs Stored Indoors	Any Spillages on site	Any Observations	Completed By

Appendix B: Surface Water Visual Log

Galco	Galco Cork Ltd. Tramore Road, Cork. P0391-01.	Surface Water Visual Log 2020					
Week No.	Date	Weather at time of checks	Any Spillages on site	Appearance	Daily Rainfall (mm)	Any Observations	Completed By

Appendix C: Interceptor Inspection Log

Galco Cork Ltd.
Tramore Road, Cork. P0391-01.

Surface Water Interceptor Visual Inspection Log 2020

Week No.	Date	Weather at time of checks	Spillages	Checks Complete on Interceptor	Note any observations of concern?	Action Needed	*Maintenance - Schedule date for cleaning 2020*	Other Comments	Daily Rainfall (mm)	Completed By