

Accident Prevention & Emergency Response Plan

Attachment J1

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ATTACHMENT J1 ACCIDENT PREVENTION & EMERGENCY RESPONSE

This document sets out the minimum requirements for the Site to develop a formal Accident Prevention and Emergency Response Procedure. The Procedure will be developed as part of the Site's Environmental Management System (to be completed within 12 months of the receipt of the Waste Licence) and will be tailored based on the lessons learnt from the ongoing operation of the plant and equipment. A Safety Statement and Manual has been developed for the site and is included as an *Annex J1-1* to this Attachment.

J1 OBJECTIVES

The objectives of the Accident Prevention and Emergency Response Procedure are to:

- protect people, the environment, property and business interests in the event of an incident or accident, either natural or human caused; and
- minimise potential disruptions to customers and losses from claims.

J2 APPLICABILITY & SCOPE

The performance expectations outlined in this document cover all employees, contractors and any other person on-site potentially at risk of harm in the event of an incident or accident.

This guideline establishes the minimum management requirements for identifying, reporting and managing incidents and emergencies. As part of this, the Site will:

- have a competent incident coordinator and incident management structure;
- implement an incident reporting and notification procedure;
- develop both an Accident Prevention Plan and an Emergency Response Plan;
- implement an incident preparedness and response training program;
- investigate all environmental incidents which occur at the facility, or during the transport of materials onto or off the site; and
- periodically review the incident management system.

J3 ROLES AND RESPONSIBILITIES

The Technical Director is responsible for ensuring the development of the Environmental Management System, including the Accident Prevention and an Emergency Response Plans.

The Site will nominate an Incident Coordinator, who will be responsible to lead any incident response measures. Unless alternative, documented, arrangements are made, the Plant Manager will act as the Incident Coordinator. The Incident Coordinator will receive formal training, or have adequate experience in the prevention and management environmental incidents.

The Plant Manager is also responsible for ensuring that the necessary equipment and training to implement the Accident Prevention and an Emergency Response Plans is provided.

J4 REPORTING

The Site will develop a system which includes the following minimum reporting requirements:

- all environmental incidents (immediately) and near misses (monthly summary) to the *TechRec* management team (i.e. the Technical and Commercial Directors); and
- all non-compliance and other notifiable instances to the EPA, local authority and other nominated agencies, as required under the conditions of the pending Waste Licence.

J5 INCIDENT INVESTIGATION

The Site will investigate all incidents with environmental implications in accordance with the incident investigation and notification procedures.

The *TechRec* management team will determine the need for additional investigation of any potentially serious accidents.

J6 INCIDENT MANAGEMENT SYSTEM

The Site will implement an incident management system to deal with reasonably foreseeable incidents that may arise. As a minimum, the incident management system will contain the following components:

- the identification of potential hazards and incidents;

- an Accident Prevention Plan;
- an Emergency Response Plan;
- the provision of appropriate emergency response training and practice drills; and
- periodic review of the system.

Information on the topics to be addressed in these Plans is provided in the following sections.

J7 IDENTIFICATION OF POTENTIAL INCIDENTS

The first step is to identify the types of hazards that could give rise to a potential environmental incident. As a minimum, the following potential hazards will be considered:

- spills or releases from the filling of the onsite diesel tank or refueling of the forklifts;
- spills or releases during the draining / decanting of liquids from WEEE, or the storage of WEEE onsite;
- failure of any of the air abatement equipment which may lead to a breach of the Licence conditions;
- failure of any of the noise abatement equipment which may lead to a breach of the Licence conditions;
- processing of potentially contaminated WEEE (e.g. items containing asbestos or PCBs);
- onsite vehicle collisions;
- fires or explosions; and
- incidents which may occur during the transport of WEEE, processed products or waste materials, either to, or from, the site.

The Accident Prevention Plan will also consider indirect incidents which may have environmental implications, such as utility failures, natural disasters, bomb threats or incidents at neighbouring facilities.

J8 ACCIDENT PREVENTION PLAN

The Site will prepare and implement an Accident Prevention Plan to assist the facility to prepare for and where possible prevent, potential emergency situations.

As a minimum, the Plan will include:

- an estimate of the likely warning times for each potential emergency situation to mobilise the emergency response team, (e.g. gradual overheating in the Hammer Mill which leads to a fire vs a sudden spill incident);
- short-term responses (e.g. immediate spill response) and long-term responses (e.g. long-term monitoring) resulting from each type of identified incident;
- the nominated incident management team (and reserves) sufficient to cover the Site's eventual 24-hour operation;
- identification / notification and response to an incident which occurs outside of the Sites initial operating hours (i.e. before it moves to 24 hours operations);
- the required emergency equipment and other materials for each type of incident;
- measures to ensure that emergency response equipment is inspected and maintained in a high state of readiness;
- identification of emergency power supply and any other utilities that may be needed;
- emergency response coordination and agreements with the local authority, EPA, contractors, consultants or other relevant organisations;
- conduct of emergency preparedness training and drills;
- notification and communication needed to respond to anticipated incidents, including requirements of government agencies and the corporate management team;
- any operational changes necessary in the event of specific emergencies (e.g. need for shut down);
- measures needed to ensure the protection of the environment, persons, property and operations from each anticipated incident; and
- any necessary public and/or media relations.

J9 EMERGENCY RESPONSE PLAN

The Site will establish a written and readily available Emergency Response Plan based on the hazards and control measures identified during the preparation of the Accident Prevention Plan.

The Plan will describe the actions of management and staff to ensure the protection of the environment in the event of an emergency incident, as well as personnel safety and the protection of property. The Plan will contain sufficient detail, in clear and logical steps, to ensure its ease of use by all staff and other onsite personnel.

The following specific actions must be addressed in the Plan, as relevant for each identified emergency situation:

- the means of evacuation:

- types of evacuation to be used in each emergency (e.g. full, partial);
- evacuation route(s) and assembly location(s) map;
- procedures to account for all staff and other onsite personnel who evacuate the site; and
- procedures for any staff may remain on the site for a time (e.g. to maintain critical operations before they evacuate);
- the nature of the warning systems and alarms for each type of emergency;
- the procedures for reporting incidents;
- specific emergency response procedures (e.g. spill response, fire control, bomb threat response etc);
- facility description and site plan;
- facility map and list detailing showing the location of all relevant response, safety and communications equipment;
- shut-down and start-up procedures;
- site security and control procedures;
- fire and explosion response;
- rescue response (e.g. for a confined space) and emergency medical response;
- decontamination procedures;
- list of persons with designated emergency response duties, including contact information;
- list of government agency contact information;
- contact with, and coordination of, local emergency services;
- training of all personnel in the plan; and
- plan review.

J10

TRAINING AND DRILLS

The Site must ensure that all staff members receive appropriate training regarding their duties and assignments within the incident management system. As part of this, the Site will develop a written training programme specifying the nature and timing of incident preparedness and response training which will be conducted in the following instances:

- initially for all new hires, contractors, or other persons working under the Site's supervision;
- when staff responsibilities change;
- when the plans and procedures change;
- when identified hazards change; and
- at least annually (as a refresher).

Training will be provided through a combination of external service providers, and on-the-job training, as relevant to the risks and the required emergency response

measures. In addition, all visitors will be provided with information regarding what to do in an emergency.

The Site will ensure that all staff members, including nightshift, participate in an emergency response drill, at least annually. This will be undertaken in addition to any statutory health and safety requirements (e.g. fire and evacuation drills).

The Site is required to document all training and drills to identify the type of training, the date, who attended and who conducted the training. Copies of training certificates, where obtained, should also be held on file.

J11 SYSTEM REVIEW

The Site must periodically review the incident management system, including the Accident Prevention and Emergency Response Plans, the Site's historical response to any incidents, the training and drills undertaken, the status of all emergency response equipment etc. As a minimum, the review will be undertaken annually, and when significant changes occur. The Site must then update the incident management system as necessary to assure that it is current and effective.

J12 INITIAL SITE PREPARATIONS

While the Accident Prevention and Emergency Response Plans have yet to be formalised, the Site has taken some actions to help ensure the safe running of the facility. This includes the provision of:

- A current Fire Safety Certificate for the building (refer *Annex J1-2* to this Attachment);
- A preliminary Fire & Evacuation Plan;
- Twelve carbon dioxide and ten foam based fire extinguishers located at strategic point around the facility (refer *Drawing 11* for locations);
- Fire exit signs and planned fire escape routes;
- Appropriately segregated and labeled waste storage areas;
- Four commercially available spill kits, located in the waste quarantine / hazardous waste storage area, waste reception, oil decanting and general production areas. The kits contain a range of spill containment and adsorbent materials, PPE, waste disposal bags, labels, instructions for use etc;
- Mobile secondary containment (pallet bunds) within the quarantine and hazardous waste storage areas as well as the oil decanting areas; and
- Permanent secondary containment around the diesel fuel tank, including an integrated leak detection system.

Annex J1-1 Health & Safety Statement

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TECHREC IRELAND LTD

SAFETY STATEMENT

AND MANUAL

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HEALTH and SAFETY POLICY STATEMENT

To each Employee, Contractor, Visitor

The management of the Company are committed to complying and improving the Health and Safety at Work Act 1989 and to ensure, as far as is reasonably practicable, a safe and healthy work environment for all our employees.

It is also Company policy, as far as is reasonably practicable, to meet our duties to contractors and members of the public who may be affected by our operations.

The success of this Health and Safety Policy will depend on your co-operation. It is therefore important that you read the document carefully and understand your role and the overall arrangements for Health and Safety in the Company.

This Policy and the way in which it is operated will be kept up to date, by annual reviews, to reflect changes in the nature and size of the Company.

Company Employees and others are encouraged to notify the Company Management of identified hazards in the workplace and where possible to put forward suggestions for improvement to the statement.

Signed: _____
Brendan Palmer MBA
Commercial Director.

Date: _____

SECTION 2. HEALTH and SAFETY POLICY

2.1 SAFETY RESPONSIBILITIES

2.1.1 The Commercial Director, Mr. Brendan Palmer MBA, is responsible for all of the Company's operations and policies and has overall responsibility for Health, Safety and Welfare in the company. He shall ensure that the responsibilities for safety are properly assigned and accepted at all levels.

2.1.2 The company's Plant manager is responsible for the day to day running of the company's Health and Safety programme. He has direct access to the Commercial Director and is responsible for the following:

- * The monitoring and appraisal of plant safety performance.
- * The review of the safety implications caused by the introduction of new plant, layout or new working practices.
- * Fire precautions, prevention provisions and evacuation procedures.
- * Ensuring that contractors working on site are adequately insured and have been informed of appropriate safety rules.
- * Co-ordination of Hazard Audits.
- * Maintenance of statutory and other routine equipment, safety testing records, e.g. fork trucks etc.

2.1.3 The responsibility for the Health and Safety of employees rests in the first instance with the Manager/ Supervisor directly in charge of the employees.

Employees who wish to raise any points relating to health and safety should speak directly to their immediate supervisor who will take action as appropriate, including referring the matter to higher management, where appropriate.

SECTION 2.

HEALTH and SAFETY POLICY cont'd

2.2 IDENTIFICATION of HAZARDS and ASSESSMENT of RISK

It is Company Policy to carry out regular Hazard Audits within the plant.. The company further commits itself to make use of the advice available through the National Health and Safety Authority and other professional safety organisations. Where necessary the company will make use of competent consultants and bodies with special skills and services to complement and enhance the internal hazard audits.

2.3 ENGINEERING IMPROVEMENTS TO REMOVE/ REDUCE HAZARDS

Where practicable, the company shall employ engineering means to remove/ reduce the risks from identified hazards. Machine guarding, provision of special tools and access arrangements are amongst the methods used.

Our approach takes into account the norms in our industry, expert advice available and objective standards or guidelines where they are available. Where the identified risks can only be resolved with significant expenditure, the Safety Officer shall present the options available to the Commercial Director for decision.

2.4 INSTRUCTIONS and TRAINING

The company recognises that even with the best engineered work arrangements, people may still need clearly defined safety working procedures and instructions. For that reason there is a substantial commitment by the company to identify safety training needs, to carry out the training and to measure the competence of trainees. The company expects that all employees will co-operate in the training exercises provided.

Certain tasks in the company's operations require that strict safety procedures be followed. Where this arises, the employees involved shall receive special instruction. It is essential that no person attempt a potentially hazardous task without instruction.

The persons responsible for training and instruction, i.e. the local area managers and supervisors, shall identify their area training needs and report on the options available to the Safety Officer for decision.

2.5 USE of PERSONAL PROTECTIVE EQUIPMENT

Approved Safety equipment is provided by the company and must be used at all times in accordance with company policy. ref. Section 3.3.

The company intends to regularly review its personal protective equipment policy and to update it as required. Experience to date, changes in work arrangements and processes will be examined during the regular reviews.

SECTION 2. HEALTH and SAFETY POLICY cont'd

2.6 CONSULTATION with STAFF on SAFETY, HEALTH & WELFARE MATTERS

The company is committed to meeting its obligations under section 13 of the Safety, Health and Welfare at Work Act 1989 on consultation with staff on Safety, Health and Welfare matters. Consultation with staff is co-ordinated by the company Safety Officer.

Employees should bring to the attention of management any situation which, in their opinion, may cause injury or ill health to themselves or others.

2.7 CREATION of a SAFE WORKING ENVIRONMENT

It is the policy of TechRec Ireland Ltd to ensure that tasks are within the competence and capacity of company employees and the methods and systems of work are designed with that purpose in mind.

It is clear that some processes necessarily give rise to tasks which can only be controlled by adherence to proper procedures. The training provided to employees will identify the area's where care and skill must be exercised.

When purchasing new equipment, altering existing equipment or changing a system of work, it is company policy to study such proposed purchases or changes to ensure so far as is reasonably practicable that they are without significant hazard.

Systems of work include all normal production work, maintenance work and work by contractors on site. They include consideration for the Safety and Health of visitors and customers. Practical Health and Safety rules have been drafted to complement these systems of work. Ref. Section 3.5.

Company Management and local area Managers/ Supervisors are responsible for the review of working methods and procedures in their individual areas to ensure the procedures in use reflect the current best operating procedures, where practicable, and that they protect the health and safety of employees.

2.8 CONTRACTORS and VISITORS

The responsibility for the safety of contractors and visitors is that of the individual with whom they are dealing. Where the visitors/ contractors are entering into the workplace they must be made aware of fire evacuation procedures and other relevant safety information.

SECTION 3. RESOURCES FOR HEALTH AND SAFETY

3.1 IDENTIFIED HAZARDS: RESOURCES PROVIDED to REDUCE RISKS

AREA: WAREHOUSE

Identified Hazards

Preventative Procedures

3.1.1 FORK TRUCKS

We recognise the risks to people who might be struck by the fork truck and the risk of attached materials falling.

Our primary resource for safety is the training of all drivers and the restriction of all driving to persons who have completed the recognised training. The warehouse manager is responsible for ensuring only qualified drivers are allowed to drive the fork truck.

Specific risks include:

Excessive speed.

Reduce speed to an acceptable level. Any drivers who drive at speed or in an unsafe manner will be given a verbal warning. If they still continue, will be given a written warning which can lead to dismissal.

Collision by fork truck body or fork blades, loads falling off.

Do not walk in front or behind moving fork truck. In general, do not stand around area where fork truck is working. When passing working area, be aware of possible danger

Being crushed by unattended fork truck.

When leaving fork truck, operator must always lower blades to the ground, switch off ignition and apply handbrake.

When fork truck is in motion, standing behind or beside driver, standing on fork blades, pallet or load.

Only driver should be on fork truck when in motion.

Driving in and out of warehouse at roller shutter door.

Drive slowly, sound horn each time.

Maintenance

All fork trucks are subject to regular maintenance and engineering inspections by our Insurers. Records are held in main office.

3.1.2 MANUAL HANDLING

1. Wooden Pallets

Back or muscle injury from incorrect handling. Lifting pallets horizontally.

Correct handling: pallets should be vertically or rolled on their side. Do not hand stack more than 7 or 8 from ground level.

Empty pallets stacked in warehouse. Possibility of:

Make sure stacks are straight and of one size, i.e. do not stack large pallets on top of small pallets.

- (i) stack falling
- (ii) pallet or pallets from top of stack falling.

2. Lifting or Moving Heavy Cartons or Equipment.

Back or muscle injury from incorrect handling.

Use correct method of handling as Instructed.

3. Handling large amounts of PC boards.

Possibility of scratches from sharp objects.

Use gloves.

SECTION 3. RESOURCES FOR HEALTH AND SAFETY cont'd

3.1 IDENTIFIED HAZARDS: RESOURCES PROVIDED to REDUCE RISKS

3.1.5 AREA: GENERAL

Identified Hazards

Preventative Procedures

SLIPS AND FALLS

There is a risk of slipping and tripping in all area's.

Spillages of water and other liquids must be wiped up as soon as they occur. Each person is responsible for keeping his/her work area clean and tidy.

Risk of tripping over materials on floor.

All materials are to be stored neatly away. Walkways to be kept clear.

Running or Rushing is not permitted within the company premises.

Personal belongings and work related material to be kept clear of walkways.

3.1.6 STORAGE OF MATERIALS

Storage of and access to material stored in the warehouse.

Items to be stacked neatly to prevent the possibility of them falling and hitting someone.

3.1.7 COMPUTER SCREENS (VDU's)

Compliance with Regulation No. 5, Safety, Health and Welfare at Work Act 1992.

Eye tests available for users.

Computer Workstations designed with operator comfort and ergonomics in mind. Work stations surveyed for compliance with regulation No. 5. Safety, Health and Welfare at Work Act 1992.

SECTION 3. RESOURCES FOR HEALTH AND SAFETY cont'd

3.2 SAFE PLANT and EQUIPMENT

3.2.1 Each item of plant in the company is subject to inspection at least once a year and safeguards are provided where appropriate. Inspections include confirmation of safe operation of guards and electrical equipment. The following checks are carried out during the inspections:

<u>Hazard</u>	<u>Check</u>
Electrical Connections	Secure and undamaged
Earthing	Secure and Continuous
Machinery Guards	Working and in Good Condition
General Condition	Item of Plant in Good Condition
Special Safety Features	Working and in Good Condition

Records of these inspections and statutory inspections of plant and equipment are retained by the Safety Officer..

3.2.2 ELECTRICAL SAFETY

Electrical equipment is subject to regular inspection by competent electricians to ensure that it remains in good condition.
In addition all new electrical installations will be tested and certified by competent electricians.

3.2.3 NOISE SURVEY

Noise level surveys will take place on a regular basis. Where noise levels are found to be above 85 dB, steps will be taken to reduce the noise levels or where this is not possible, ear protection will be provided to the employees affected. Noise level surveys will be co-ordinated by the Safety Officer

3.2.4 SAFETY TRAINING

Safety training is provided for personnel using Fork trucks and for all personnel involved in Manual Handling.
Safety training is carried out as part of, and in certain cases, in addition to training in new tasks.

SECTION 3. RESOURCES FOR HEALTH AND SAFETY cont'd

3.2 SAFE PLANT and EQUIPMENT

3.2.5 HOUSEKEEPING

A high standard of housekeeping is maintained in the plant, where possible. Floors in the Warehouse area are painted and cleaned regularly, goods are stored neatly away and all waste is placed in the waste bins provided.

It is the responsibility of all personnel in the company to keep their workplace and the surrounding area clean and tidy. Walkways are to be kept clear at all times.

3.3 PERSONAL PROTECTIVE EQUIPMENT

3.3.1 Protective equipment is provided to all direct employees where required. The following equipment is provided:

<u>Item</u>	<u>Where & When Used</u>
HIGH VISIBILITY VESTS	At all times.
GLOVES	When handling PC boards or other sharp edged equipment
STEEL TOE CAP BOOTS OR SHOES	Footwear to be worn by all to whom it is supplied at all times.

Responsibility for ensuring that the equipment is used and used correctly rests with the local area supervisors.

3.4 WELFARE FACILITIES

The following personal hygiene and general welfare facilities are provided by the company.

- * Clean, spacious, well maintained, toilet and washing facilities.
- * Personal Protective Equipment provided to staff.
- * Canteen facilities.

All employees are obliged to care for these facilities and not to damage or misuse them.

SECTION 3. RESOURCES FOR HEALTH AND SAFETY cont'd

3.5 GENERAL SAFETY and HEALTH RULES

- * NO SMOKING is allowed in the plant or offices, in accordance with the company's No Smoking Policy.
- * NO ALCOHOL or NARCOTIC SUBSTANCES are allowed, and persons who are under the influence of these substances are not permitted on the premises.
- * NO RUNNING is allowed in the factory.
- * HORSEPLAY **is not permitted** in the factory due to the high risk of personal injury.
- * PERSONAL PROTECTIVE EQUIPMENT should be worn **at all times** by staff to whom it has been issued in keeping with the Company's Personal Protective Equipment Policy.
- * NO TIES or LOOSE CLOTHING to be worn at machinery.
- * ALL MACHINERY must be shut off after use. Under no circumstances should machinery be left running unattended.
- * The operation of machine guarding and other essential safety devices must be checked by the machine operator at start of operation. Management must be informed of all equipment faults promptly.
- * Under no circumstances should protective guards be removed or tampered with by the machine operator unless given express instructions to do so by company management.
- * Personnel are not permitted to operate machinery unless they are properly trained or under supervision.
- * Blunt or damaged tools should not be used. They should be brought to management's attention so that sharpening or repair may be arranged or replacements ordered.
- * FIRE FIGHTING and SAFETY EQUIPMENT is provided for your protection. Do not damage or misuse equipment.
- * FIRST AID and FIRE FIGHTING EQUIPMENT should only be used by trained personnel.
- * Good Manual Handling practices must be followed at all times.
- * Good Housekeeping practice must be followed at all times. It is the responsibility of all staff to keep their immediate work area and surrounding area's clean and tidy.

SECTION 3. RESOURCES FOR HEALTH AND SAFETY cont'd

3.5 GENERAL SAFETY and HEALTH RULES - cont'd.

- * ALL ACCIDENTS must be reported to Company Management and recorded in the Accident Book.

- * All dangerous acts, dangerous occurrences and dangerous conditions must be reported to management without delay.

- * Employees must follow the Fire Evacuation Procedures in their own area's.

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SECTION 4. FIRE, EMERGENCY and FIRST AID

4.1 FIRE SAFETY EQUIPMENT

4.1.1 FIRE EXTINGUISHERS

Fire extinguishers are placed in fire points at strategic locations throughout the plant. These are tested and certified on an annual basis by outside contractors. Fire extinguisher demonstrations are arranged for all employees on an ongoing basis. A plant drawing showing the location of extinguishers is maintained by the Safety Officer.

4.1.2 FIRE EXTINGUISHER MAP

4.1.3 FIRE EQUIPMENT INSPECTION

The inspection of safety equipment and facilities is co-ordinated by the Safety Officer. He maintains records of all inspections in the Safety file, and the details of personnel who performed the inspections.

4.2.2 EVACUATION PROCEDURES

These are specified on the following page.

FIRE EMERGENCY PROCEDURE FOR ALL STAFF

IF YOU DISCOVER A FIRE

1. Raise Alarm. Warn personnel in the immediate vicinity.
2. Tackle fire using the nearest suitable equipment **only if it is safe to do so**, and leave whenever danger threatens.
3. In the event of a serious fire, raise the alarm by either of the following:
 - (i) Contact the Receptionist and give her the location of the fire.
 - (ii) Call the Fire Brigade either through the main switch or payphone using a 999 call and give the following information:

Company Name: **TechRec Ireland Ltd**
Address: **Park West, Business Park
Nangor Road
Dublin 12**

4. Leave the building by the nearest **EXIT** and proceed to the Fire Assembly Point at the front of the building.
5. If you believe that someone is still in the building, report this to your Supervisor or the Safety Officer.
6. Make ready to assist the Fire Brigade on their arrival.

ON HEARING A FIRE WARNING

1. Evacuate the building immediately by the nearest **EXIT** without running or stopping to collect personal belongings.
2. Leave your area safe and secure, i.e. turn off fork trucks etc.
3. Proceed to the Fire Assembly Point at the front of the building and stay there.

**DO NOT RE-ENTER THE BUILDING UNLESS INSTRUCTED TO
DO SO BY COMPANY MANAGEMENT OR THE FIRE BRIGADE.**

SECTION 4. FIRE, EMERGENCY and FIRST AID cont'd

4.3 FIRST AID

4.3.1 FIRST AIDERS

The following people are qualified to administer First Aid:

Lynda Palmer.....

.....

4.3.2 FIRST AID BOXES

A central First Aid Box is provided in the warehouse.

A list of qualified First Aiders is provided in the First Aid Box, as is a list of contents. Contents shall be checked at least every quarter and stock ordered as required.

Recommended First Aid Box Contents for 1-10 Persons:

	<u>Quantity</u>
Pairs Latex Gloves	2
Plaster Strips	2
Scissors	1
Industrial Wrapped Sterile Wipes	6
Triangular Bandages	6
Safety Pins / Adhesive Tape	6
Dressings - Medium	6
- Large	2
- Extra Large	3
Paraffin Gauze Dressing	1
Sterile Eye Pads	2
Burneez Spray	1
Savlon Cream	1

SECTION 4. FIRE, EMERGENCY and FIRST AID cont'd

4.3.3 FIRST AID INDEX CHART

A First Aid Index chart as supplied by the Health Promotion Unit, Department of Health is located beside the First Aid box.

4.4 ACCIDENT PROCEDURE

All accidents shall be recorded in the Company Accident Book. All accidents shall be reported immediately and First Aid sought, if necessary. Copies of accident reports are sent to the company's insurance brokers. All employees are obliged to co-operate with accident investigations and to provide any information which may be useful in establishing the circumstances surrounding the accident.

4.5 NEAREST HOSPITALS

The nearest hospitals are

St James' Hospital
James' Street
Dublin 8

James Connelly Hospital
Blanchardstown
Dublin

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SECTION 5 CO-OPERATION OF EMPLOYEES

5.0 All employees are required to do the following enable the company to operate and maintain a safe workplace and comply with Section 9 of the Safety, Health and Welfare at Work Act, 1989.

- (a) To take care of their own safety and the safety of others who may be affected by their actions while at work.
- (b) To co-operate with the company management to enable them to comply with the relevant statutory Health and Safety provisions.
- (c) To use protective clothing and equipment provided correctly in order to provide the protection intended.
- (d) To report to their immediate supervisor, without delay, any defects in plant, equipment, place of work or system of work, which might endanger Safety, Health or Welfare, of which they become aware.
- (e) No employee shall intentionally or recklessly interfere with or misuse any appliance, protective clothing, convenience, equipment or other means provided to secure the safety, health and welfare for all.

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SECTION 6: MANAGEMENT ANNUAL REVIEW

6.0 The Commercial Director shall, in conjunction with the Safety Officer, carry out an annual review of the Company's Safety, Health and Welfare activities as detailed in the company's Safety Statement.

6.1 The agenda of items to be discussed include

- * Review of Safety Statement effectiveness and implementation
 - Preventative Measures taken.
 - Data on Accidents and Ill Health in the workplace
- * The level of resources committed to Health and Safety
 - New Safety arrangements put in place
 - Purchase of new Safety equipment
 - Safety training courses attended during the year.
- * Review of Safety Meetings held during the year.
- * Review of Fire and Emergency drills held during the year.
- * Safety Programme for following year
- * Highlighting of potential risk areas
- * Necessary revisions to the Safety Statement taking account of :
 - Names of responsible persons.
 - Changes in risks.
 - New Machinery.
 - New work practices.
 - New personal protective equipment.
 - New legislation or standards.

6.2 The meetings shall be minuted and agreed actions followed up.

SECTION 7: CIRCULATION LIST

Any changes to the Safety Manual, the following are to receive revised copies.

Managing Director	Gerry Killen
Commercial Director	Brendan Palmer
Plant Manager	Michael Gannon

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Annex J1-2 Fire Certificates

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Fire Prevention Section

Fire Brigade Headquarters, Townsend Street, Dublin 2.

Tel: 353-1-6734000

E-mail: fire@dublincity.ie

Website: www.dublincity.ie

BUILDING CONTROL ACT, 1990.

FIRE SAFETY CERTIFICATE

Reference No. in Register: 02/1742

TO: CAREW KELLY ARCHITECTS,
ADDRESS: 18/19 HARCOURT STREET,
DUBLIN 2.
ATT. BARRY KELLY.

Application for a Fire Safety Certificate (Ref. No.: 02/1742)

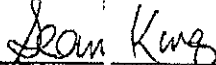
FOR: EXTENSION TO AND MODIFICATION OF INTERNAL LAYOUT TO
WAREHOUSE AND ANCILLARY OFFICES.

AT: UNIT 51, PHASE 2, PARK WEST INDUSTRIAL PARK, DUBLIN 12.

Dublin City Council hereby certifies that the building or works to which the application relates, will, if constructed in accordance with the plans, calculations, specifications and particulars submitted, comply with the requirements of Part B of the Second Schedule to the Building Regulations, 1997. In considering the application, no assessment has been made as to whether the building or works will comply with the other requirements of the Second Schedule to the Building Regulations, 1997. This Certificate is **GRANTED** subject to the following conditions:

NONE

Signed on behalf of Dublin City Council:


Senior Staff Officer

Dated this 17th day of DECEMBER 2002

Note: An applicant who is dissatisfied with a decision of the Building Control Authority may appeal to An Bord Pleanála. An appeal may be made within a period of one month beginning on the day of the decision of the Building Control Authority on an application.



DUBLIN CORPORATION

Fire Prevention Section
Fire Brigade Headquarters, Townsend Street, Dublin 2.
Tel: (01) 673 4000

BUILDING CONTROL ACT, 1990

FIRE SAFETY CERTIFICATE

Reference No. in Register: 01/1011

TO: CAREW KELLY ARCHITECTS,
ADDRESS: 18/19 HARCOURT STREET,
DUBLIN 2.

Application for a Fire Safety Certificate (Ref.No.:01/1011)

FOR: NEW WAREHOUSE/LIGHT INDUSTRIAL UNIT WITH ANCILLARY OFFICES.

AT: SITE 51 , PHASE 2, PARKWEST INDUSTRIAL ESTATE, DUBLIN 10/12.

The Corporation of Dublin hereby certify that the building or works to which the application relates, will, if constructed in accordance with the plans, calculations, specifications and particulars submitted, comply with the requirements of Part B of the Second Schedule to the Building Regulations, 1997. In considering the application, no assessment has been made as to whether the building or works will comply with the other requirements of the Second Schedule to the Building Regulations, 1997. This certificate is **GRANTED** subject to the conditions as set out on the Schedule attached hereto.

Dated this 15th day of March 2001

Signed:

PRINCIPAL OFFICER

to whom the appropriate powers have been
delegated by Order of the City Manager
dated 19th of FEBRUARY 2001

Start-Up & Shut-Down

Attachment J2

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Section J2.1 in this Attachment provides an overview of the failure modes and control sequences which will trigger an automatic shutdown in each of the key Modules.

Section J2.2 provides a summary of the operational control parameters for each of the key equipment items, namely the Tube Filters; the QZ Shredder; Hammer Mill, Wheel Sluice; Cyclone, Screening Machine; Splitting Drum; Magnetic Separator, Zigzag Classifier; Multicone Sifter; Vibrating Shute; Vibrating Filter and the Density Separator.

Additional information is provided in the *TechRec* Design and Operating Manuals. The Manuals for the key process, control and abatement equipment have been submitted separately as commercially sensitive information in support of the Licence Application.

J2.1 Shutdown Modes and Sequence for Each Module

MODULE 2

Incidents that will cause the immediate stop of Module 2a include the direct intervention of the operator, or the failure of a critical control system within the plant.

Direct intervention by operator:

Module 2 will shutdown immediately in the event that:

- The emergency stop button is pressed; or
- A safety door or cover is opened while the machine is active.

If the fault response is suspended (i.e. if the release line is pulled by the Operator within 20 seconds), the drive will not be stopped.

Plant/equipment fault:

Module 2 will stop within 20 seconds if any of the following occur:

- Voltage breakdown;
- Bus fault in the controlling system;
- Fire alarm (external fire extinguisher system);
- At least one drive within the module isn't working;
- QZ-stock temperature (at the top or at the bottom) reaches the pre-set threshold;
- Compressed air at the jet-filter or compressor is below the minimum pressure; or
- Overloading or blocking of the system occurs.

When a stop is triggered, the drives in Module 2 are stopped in the following sequence:

Ref	Part	Stops after
2-01	loading conveyor	1.0 sec
2-03	entry drain drive.1	5.0 sec
2-04	entry drain drive.2	5.0 sec
2-05	QZ machine	10.0 sec
2-11	magnetic over belt	20.0 sec
2-12	drive by magnet over belt	20.0 sec
2-09	heavy parts conveyor	20.0 sec
2-06	hydraulic pump	25.0 sec
2-07	ventilator	25.0 sec
2-23	ventilator	5.0 sec
2-19	jet filter unit	10.0 sec
2-13	airlock (multi sifter)	100.0 sec
2-15	sieve machine drive.1	120.0 sec
2-16	sieve machine drive.2	120.0 sec
2-17	airlock (cyclone)	120.0 sec
2-21	air lock (jet filter)	120.0 sec
2-25	Climbing conveyor	1.0 sec
2-27	formation chute drive.1	5.0 sec
2-28	formation chute drive.2	5.0 sec
2-29	slit drum	10.0 sec
2-31	sorting chute drive.1	15.0 sec
2-32	sorting chute drive.2	15.0 sec
2-33	magnetic over belt	20.0 sec
2-35	selection belt	25.0 sec

MODULE 3

Incidents that will cause an immediate stop of Module 3 include the direct intervention by the operator or a failure of a critical control system within the plant.

Direct intervention by the operator:

Module 3 will shutdown immediately in the event that:

- Emergency stop button is pressed
- The release line is pulled; or
- A safety door or cover is opened.

If the fault response is quit, i.e. the release line is pulled by the operator within 20 seconds, the drive will not be stopped.

Plant/equipment fault:

Module 3 will shutdown within 20 seconds if:

- Voltage breakdown;

- Bus fault in the controlling system;
- Fire alarm (external fire extinguisher system);
- At least one drive within the module isn't working; or
- Compressed air at the jet-filter or compressor is below the minimum pressure.

When a stop is triggered, the drives in Module 3 are stopped in the following sequence:

Ref	Part	Stops after
3-01	selection belt	immediate
3-02	vibro chute drive.1	immediate
3-02	vibro chute drive.2	immediate
3-13	eddy current	1.0 sec
3-03	cross climbing conveyor	5.0 sec
3-05	sorting chute drive.1	10.0 sec
3-06	sorting chute drive.2	10.0 sec
3-07	magnetic over belt	15.0 sec
3-09	drum magnet	20.0 sec
3-21	entry chute drive.1	30.0 sec
3-22	entry chute drive.2	30.0 sec
3-23	ventilator main circle	35.0 sec
3-31	separation drum	40.0 sec
3-25	ventilator vacuum dust	100.0 sec
3-27	vibration filter drive.1	100.0 sec
3-28	vibration filter drive.2	100.0 sec
3-29	airlock (vibration filter)	100.0 sec

MODULE 4

Incidents that will cause an immediate stop of Module 4 include the direct intervention by the operator or a failure of a critical control system within the plant.

Direct intervention by operator:

Module 4 will shutdown immediately in the event that:

- Emergency stop button is pressed;
- Release line is pulled; or
- Sudden opening of a safety door or cover.

If the fault response is quit, i.e. the release line is pulled by the operator within 20 seconds, the drive will not be stopped.

Plant/equipment fault:

Module 4 will shutdown within 20 seconds if:

- Voltage breakdown;
- Bus fault in the controlling system;

- Fire alarm (fire extinguisher system);
- The HM reacts due to overload or blocking;
- At least one drive within the module isn't working;
- Compressed air at the jet filter or compressor is below the minimum pressure.

When a stop is triggered, the drives in Module 4 re stopped in the following sequence:

Ref	Part	Stops after
4-17	Hydraulic pump	----
4-18	Valve open close HM 1+2	----
4-01	proportion belt	1.0 sec
4-02	ventilator	1.0 sec
4-03	vibration chute drive.1	1.0 sec
4-04	vibration chute drive.2	1.0 sec
4-43	stack conveyor	5.0 sec
4-09	loading conveyor	5.0 sec
4-11	entry chute	10.0 sec
4-13	hammer mill drive.1	15.0 sec
4-14	hammer mill drive.2	20.0 sec
4-19	discharge chute drive.1	25.0 sec
4-20	discharge chute drive.2	25.0 sec
4-21	airlock Zigzag shifter	30.0 sec
4-35	sorting chute drive.1	35.0 sec
4-36	sorting chute drive.2	35.0 sec
4-37	drum magnet	40.0 sec
4-39	conveyor	45.0 sec
4-41	sieve machine drive.3	55.0 sec
4-42	sieve machine drive.2	55.0 sec
4-33	ventilator	5.0 sec
4-29	jet filter unit	10.0 sec
4-23	airlock (multi sifter)	100.0 sec
4-25	sieve machine drive.1	120.0 sec
4-26	sieve machine drive.2	120.0 sec
4-27	airlock (cyclone)	120.0 sec
4-31	airlock (jet filter)	120.0 sec
4-51	proportion chute	5.0 sec
4-53	loading conveyor	10.0 sec
4-55	air separator	17.0 sec
4-57	air separator ventilator	17.0 sec
4-59	ventilator	20.0 sec
4-61	vibration filter 1	115.0 sec
4-62	vibration filter 2	115.0 sec
4-63	lock (vibration filter)	115.0 sec

J2.2 Operational & Control Parameters

Tube Filter DS 1.8/90/65

Initial Operation & When Changing the Filter Sock

- The indicator for differential pressure has to be adjusted to the zero line by the setting screw.
- The opening for the dust delivery should be closed.
- The filter should be set to work according to the following consecutive sequence:
 1. dust delivery part,
 2. compressed air de-dusting,
 3. main ventilating fan.
- During the first days of operation the indicator for preferential temperature difference will be closely supervised as it provides an indication of the pressure difference between the crude gas unit and clean gas unit.
- The resistance is a measure of the correct working of the filter. When a new filter is installed the initial resistance will be low. This will increase as it builds up a debris layer and its performance will subsequently improve. It will take at least a few hours for the permanent filter bed to develop completely.
- Before the filter bed has developed completely, the main ventilating fan will accept a higher volume of air than under normal operating conditions. This can allow the accumulated dust to penetrate too deep into the filter medium, which eventually becomes unusable. Therefore, the main ventilating fan will be choked during commissioning. It is important to meet the maximum air volume assigned for the installation as closely as possible.
- The de-dusting of the filters using compressed air will initially be adjusted to extreme dead time (200 sec) and a short pulse (0.5 sec). Once the filter cloth resistance has reached its desired value, the pulse time will be lengthened. If the differential pressure falls, the pulse time will be shortened again. If the differential pressure keeps rising, the interval time will be shortened.

Initial Operation for Micro-filtration

- Before initial operation – check the fit of the filter jig and test for leaks.
- The rated air flow should be adjusted at every filter system, or a filter overloading will occur and the filter material will be damaged.
- The initial resistance of the new filter material is < 1 mbar.
- With grinding products of < 5 μ , the un-ground product will form a coat and provide a filter resistance of about 4 mbar. Fresh product will not be processed until then.
- A radial ventilator, which is topped to the filter, is to be adjusted precisely with the air of the grinding and the air of the injector.
- A new radial ventilator with felt ring sealing at the shaft exit to the case may exhaust up to. 5-7% of air (i.e. through leaks).

- During initial operation, the pause time of the filter de-dusting should be adjusted to suit the filter resistance. (Adjust the top working point at around 5 – 8 mbar). .
- The normal operating range for filter differential pressures is between 10-12 mbar.

Error Analysis	Possible Cause	Action
No pressure display	Shut-off valve closed Pressure not set Manometer defective	Open shut off valve. Set pressure with pressure setting button. Replace manometer
Low flow - operating pressure fails when compressed air is applied	Filter element is dirty. Restriction between shut-off valve & maintenance unit.	Replace filter element. Check tubing
Pressure increases above set operating level	Defective valve face on sealing set	Return to supplier for repair
Exhaust can be heard near setting button	Valve seat damaged	Return to supplier for repair
Exhaust can be heard near bleeder screw	Leakage in bleeder screw	Tighten or replace

QZ Shredder

Operating Principle

The function of the QZ Machine (QZ) is to reduce materials to small pieces and separate materials into their individual composites. This process is performed by two horizontal rotating chain beaters that consist of two ends of a single chain. This chain rotates in a double wall cylinder approx. 2 m in diameter and 1.7 m high. The QZ operates continuously when shredding electronic scrap, i.e the discharge cover is always open. The size of the opening is determined at machine start up in line with the actual material quantity. The cover commutes continuously between two defined opening points to counter act any material surges. The size of the discharge opening influences the shredding performance and the dwell time of the materials in the QZ. Operating the QZ with the cover closed is not permitted.

Measures for Preventing and Rectifying Faults

If a fault occurs and causes the machine to malfunction, proceed as follows:

- On identifying a fault, shut down the machine immediately.
- If the cause of the fault can not be located immediately, set the main switch to OFF and secure the machine against restarting.

If a fault can not be located and rectified without external assistance, contact the manufacturer's customer services department.

Hammer Mill 650/1000

Operating Principle

Hammer Mills is designed to crush, soft, medium hard and hard materials and is successfully used for processing complex scrap and de-dusting. The material to be crushed is transported to the mill by means of a conveyor. The crushing takes place between two rotating hammers and the fixed deflection bars, located beside the chamber. The grinding fineness depends on the size and type of the selected exchangeable grids. The material is either discharged mechanically via conveyors or pneumatically. Charge and material discharge are designed according to the application.

Explosion Protection

Crushing of hard materials in the Hammer Mill can cause sparking inside the chamber. A check should be run to determine the possibility of the formation of explosive mixtures for different applications, and to determine, which explosion protection measures should be taken. This should include an analysis of dust samples from the crushed materials. The suction extraction line has equipped with a lightening hole at the bend, closed by a rubber cover.

Sound Proofing

The Mill is encapsulated in a purpose designed enclosure from which aeration and ventilation are controlled. Operating personnel can access the machine through a lockable door. The noise emission limit value on commissioning is <85 dB(A).

Prohibited Use

The following materials should not be processed in the Hammer Mill:

- Explosive material such as explosive charges, gas-filled hollow bodies;
- Hard building material such as granite, reinforced concrete etc; or
- Steel parts such as rail track parts , steel shafts, plates etc.

Error Analysis	Possible Cause	Action
Exceptional vibrations	Rotor is unbalanced. Damaged bearings Defective machine pedestals V-belt slippage	Check orientation of hammers. Check bearings & replace if necessary Check & replace if necessary Check V-belt tension & condition, tighten or replace
Bearings become too hot	Bearings without grease. Too much grease in lubricant. Excessive V-belt tension	Lubricate bearings Reduce amount of lubricant. Reduce tension
Mill does not start up	End switch was actuated. Main & control fuse	Check and correct end switch position.

Error Analysis	Possible Cause	Action
	defective. Motor protection relay triggered.	Replace fuse Check motor protection relay settings & increase if necessary
	End switch loose or set too low. Motor protection lamp triggered.	Reset end switch. Reduce feed & replace fuse.

Cellular Wheel Sluice

Operating Principle

The cellular wheel sluice serves as a discharge and metering unit for different machines and devices such as e.g. filters cyclones, classifiers and silos, where bulk material is to be discharged. Material descending from above is fed to the rotor chambers via the feed nozzle of the cellular wheel sluice. Due to the rotation of the rotor, the chambers are alternately shut off against the sluice wall and the material is transported toward the discharge nozzle. The chamber then rotates back to the top, is refilled at the feed nozzle, is discharged and the cycle is repeated. The screw-in flexible fins seal the feed and discharge nozzles from each other. They also prevent coarser parts from jamming the rotor at the sluice wall. The lateral gaskets serve the same purpose.

High Performance Cyclone

Operating Principle

The cyclone is used to separate particles from air currents containing particles and is prior to the filters. The cyclone consists of a cylinder, tapered at the bottom, with a tangential feed nozzle at the top. There is one central discharge in the upper and one in the lower part of the cyclone. Its operation is based on the centrifugal acceleration of the particles contained in the flow of air, caused by tangential air intake. The centrifugal forces press the particles against the outer wall of the cyclone shell. The particles are then discharged towards the bottom in the form of an outer whirl. However, since most of the air can not escape from the cyclone via the bottom discharge, a second inner cyclone whirl develops, leaving the cyclone via the inner central upper tube. The heavy particles, which could not be pressed against the cyclone wall by means of centrifugal acceleration, are discharged at the bottom via a discharge unit. The lighter particles, which can not be pressed against the cyclone wall due to insufficient centrifugal acceleration, are entrained by the inner whirl and discharged at the top.

Since the inner vortex almost always has a fixed point of origin, it is possible for the vortex to oscillate on the cyclone wall and to take in already separated particles from this wall and discharge them; this would drastically reduce the cyclone's separation rate. To prevent this from happening, the high

performance cyclone comes with a discharge pot which has a central shielding cone to shield the separated material inside the discharge pot which has a central shielding cone to shield the separated material inside the discharge pot from the cyclone vortex. The vortex can now oscillate on the shielding cone, where there is no danger of taking in particles.

Error Analysis	Possible Cause	Action
No material discharge	Clogging inside cyclone. Discharge unit blocked	Open house & remove clogging. Clean discharge unit
Poor discharging results	Plunger tube at wrong height	Check & reset position

Screening Machine RSM 500/1300

Operating Principle

The screening machine is used to classify heterogeneous particle groups into different sieve fractions. The unbalanced motors vibrate the screening machine and consequently, the screen surfaces. The material to be screened is exposed to impulses conveying the material towards the discharge in projectile motion. Grains smaller than the width of the corresponding screen surface pass through and are transported to the discharge intended for this sieve fraction.

The vibrations cause the material to be projected approximately 10-20 mm high, to guarantee sufficient loosening of the material and self-cleansing of the screen surface. The desired screen fractions are adjusted by means of the screen surfaces. The most favourable surfaces depend on the task and the material to be screened and must be determined individually, possibly by means of trials.

Error Analysis	Possible Cause	Action
Sudden rattling of machine	Loose screw	Immediately stop the machine & locate error
Sudden vibration of the screen	Surface torn	Replace surface
Uncoordinated & strong vibrating of machine	Resonance effect	Stop machine & restart

Splitting Drum

Operating Principle

The separating drum splits a free falling pre-separated product flow into two product flows. It is used if the material has a strong tendency to entangle or is comprised of misshapen parts such as foil, and long parts, which will quickly clog fixed separators and render them ineffective. The separating drum is

aligned in such a way that in the direction of transportation the desired fine fraction in front of the drum will fall into the fine materials chute, whereas the coarse fraction will be collected by the drum and discharged into the coarse materials chute.

Error Analysis	Possible Cause	Action
Drum is blocked	Jamming by coarse material	Remove jamming
Dissatisfying separation results	Caused by coiled material (e.g. wire)	Stop machine & clean

Over-belt Magnetic Separator

Operating Principle

The system uses permanent lifting magnets over conveyor belts for the removal or extraction of iron from muck. In general, these magnets are cased magnet blocks arranged in such a way to create powerful magnetic fields. The iron is magnetized by the field lines of the magnetic core and withdrawn from the muck towards the magnetic core against the gravitational force. In the case of self releasing systems, the separated iron is removed from the remaining material by means of a revolving conveyor belt and discharged into a collection bin.

Zigzag Classifier

Operating Principle

The classifier is mainly used to de-dust and classify milled material originating from hammer mill crushing. The classification is based on the principle of cross-flow and up-current separation. Air, drawn in from the bottom via the air-addition slide valve, flows through the material falling into the feed shaft, thereby removing light material and fine dust by means of the air current. Due to the specially designed form of the classification area, the falling material circulates and collides with the zigzag edges of the classifier. This process removes most of the dust and light materials. The degree of separation depends on the number of cascades, on the amount of air drawn out by the ventilator and on the type and amount of feed material. As for the output of the ventilator, the desired amount of separating air can be controlled by means of the air-addition slide valve, located at the bottom of the zigzag classifier's heavy material discharge unit.

Materials can only be efficiently separated, if the material is distributed evenly over the entire width of the feed shaft. In most cases, matted and entangled material cannot be sufficiently broken down. The process requires a vacuum inside the zigzag classifier, which is large enough to sufficiently de-dust the connected crushing machine and to supply it with cooling air.

Multicon Sifter Type MKS

Operating Principal

The deflection sifter is used to de-dust relatively fine materials with a tendency to felt. The objective is to separate the fine metal particles contained in the flow fraction from the fine dust so that the metal accumulates and post-treatment becomes possible. The sifting is based on the principle of cross-flow and up-current separation. The material drawn in via the feed shaft is deflected at the central input connection inside the sifter. It is distributed sideways via a central distribution cone. Simultaneously, air is drawn in from the outside via a scavenging air valve, flowing through the material centrally from the bottom.

Dispersible light material is entrained by the upward air current and separated in the subsequent filter. The expansion of the sifting area towards the top reduces the higher air velocity acting in the lower part of the sifter as it reaches the upper part of the sifter. This causes light material entrained in the beginning to drop down again at the sifter walls. In the lower part of the sifter it will be purged with scavenging air via a lateral belt of ports, which can be adjusted by means of a rotary valve.

The scavenging air separates further fine particles from the light material to be carried away by the sifting air. This interaction of different air currents and vortexes inside the sifter, together with the zigzag walls of the sifter housing leads to strong material circulation and contact. Material tending to felt such as coil wire can get caught in each other and is discharged as felted material, as it can no longer be entrained by the air. The Operator must ensure that coarse dust is not sucked in, since it could clog the air distribution ring. In conjunction with the large sifter volume and the large throughput of air, it is possible to separate the fine metal contents and to discharge them with the heavy material. The sifter settings depend on the material and must be determined experimentally.

Silo with vibrating conveyor

Operating Principle

The unbalanced motors vibrate the trough directionally. The material to be conveyed is exposed to impulses from the direction of the bottom of the trough, conveying the material towards the end of the trough in a projectile motion. At the same time, the material is distributed over the entire width of the trough bottom.

Vibrating filter 200/36

Operating Principle

The filter has been designed for the de-dusting of non-toxic dust and gas mixtures. Once charged at the feed nozzle, the dust and gas mixture is conveyed through pipelines into the filter feed box to be distributed. The

carrier gas flows from the inside through the filter hoses. There, a filter pre-coat develops, improving the filtering effect. At the same time, the filter resistance increases and thus also the pressure inside the filter hoses. The developing dust layer can be cleaned in intervals using a vibrator. The cleaning pulses can be electronically controlled and adjusted to the individual operating conditions. The dust falls into the discharge hopper and is removed via a discharge unit.

Density Separator

Operating Principle

The density separator is able to separate products of different specific weights, regardless of their size. The closer the particle size range of the product, the higher the separation accuracy. The product must be a dry granulated material. The shape may also have an impact on the separation process.

The product being fed into the density separator is evenly spread onto the lengthwise inclined working screen by means of a spreading device. Compressed air is then blown through the screen from underneath. The eccentric drive supplies the working screen with movement for transport towards the upper part of the screen. The air from underneath makes the products move in a flow like state. The fraction with the higher specific weight precipitates onto the working screen, whereas the fraction with the lower specific weight floats to the surface. Due to the movement of the working screen, the higher specific weight product, which rests on the working screen, is transported towards the upper part of the screen, and the lighter fraction floats towards the lower discharge of the screen.

An aspiration unit removes the air blown into the machine by the ventilator. The Operator must ensure that the amount of air drawn out always exceeds the amount of air blown in from underneath, so that a slightly negative pressure is created within the machine. This prevents dust from escaping from the machine. Insufficient suction will allow dust to escape from the machine, this will then be drawn back in by the ventilator and will accumulate on the bottom side of the working screen and impair its function. Above the upper part of the screen is a counter-flow valve. The airflow can be adjusted by means of this valve facing the direction of the screen and blows light parts down the screen.