

CUSTOMER CATEGORISATIONS

A RISK BASED APPROACH TO MATERIALS INSPECTIONS

Purpose of a Risk based approach to receipt of materials?

Every company has limited resources available to inspect materials when they arrive at site, and quite commonly with the receipt of batteries you can only view the top layer of batteries and not see what is going on beneath those batteries that are visible.

It is generally impractical to immediately inspect every single package in great detail, but this may be required if the potential risk profile is deemed high enough to warrant a full investigation into the materials received.

The main reasons for a risk based intervention method is to allow for more detailed materials investigations on a selective method to prevent these potential consequences (this is not exhaustive);

1. **A Legal Breach** – Ensure that we are adequately resourced and licensed to deal with the materials received including potential rogue materials or contaminants
2. **Risk of Fires** - There is a risk that incorrectly stored, packaged and/or damaged batteries may give rise to fire, especially during hours where materials are not supervised
3. **Risk of Pollution and Harm by other means** – poorly packaged or secured materials, or materials with contamination (such as liquids etc...) may leach or fall or spill during normal operations or outside of working hours



handling arrangements sometimes make it difficult to see the whole array of materials and materials condition below the visible materials

As we continue to reiterate in our systems and procedures our core materials business is battery recycling.

Batteries are generally inherently safe whilst they are maintained in a good and safe condition – that is to say that all of the chemicals and compounds that may cause a risk to people or the environment are all ‘locked inside’ a tough plastic casing that is sealed and contains everything.

Lead Acid Batteries, or any battery for that matter, normally contain metals or metal compounds that are toxic to people and the environment, and an electrolyte that may be either corrosive or flammable – however, what most of us forget

when looking at batteries, is that they are all storing energy and despite having discarded them they will continue to store energy, and this creates a risk of fire if not managed properly.



How the system will work

Materials Risk Profile		Customer Competence Risk Profile		
		High	Medium	Low
Alkaline, NiMH, Zinc air	Low	Yellow	Green	Green
Nickel Cadmium, Lead-Acid, and EV NiMH	Medium	Red	Yellow	Green
Lithium - All types	High	Red	Red	Yellow

An initial categorisation will be made based on the material type that each customer is proposing to send to site as well as the customer type and experience in dealing with hazardous materials and/or their systems of operations.

Each collection or delivery to site will then be coded according to the Customer / Materials Risk matrix

The matrix table showing their competency and the material type of the generated waste will score the risk and identify the level of intervention required.

The level of intervention will be based on:

GREEN Code indicates no expected problems, the driver’s in-house training on our procedures and ADR training deemed as suitable and sufficient for a visual inspection at the point of collection to be acceptable, along with a further visual check at the point of unloading back at site.

AMBER Code will result in audits or regular inspections of the materials and the customer, with regular communications to the customer as required.

A thorough examination and inspection of the materials will take place on arrival and involve both site staff as well as a Senior Manager in the Materials assessment process prior to acceptance.

RED Code may involve a Site inspection or site visit to the Customer premises prior to the arrangement of a collection or delivery but advanced photos of materials state and packaging arrangements will be requested via email.

Every RED categorisation collection will require a Pre-acceptance form before the collection is made and will also require the driver to confirm their acceptance of the load, to the office at Fenix prior to leaving the customer’s site.

On arrival of the materials a full inspection of the Materials will be undertaken by decanting the materials and repacking or inspecting in a dedicated quarantine area prior to the acceptance being completed

All Materials acceptance will be undertaken and verified within 4 hours of its arrival

How to Code based on the Risk Based Matrix for Intervention

We have identified 2 principle measures that can be applied to a Risk based intervention method, which are;

Customer competence

Highly competent. (LOW)

In principle where a company handles batteries as a primary product and therefore is expected to have suitable knowledge and experience and is also large enough to assign sufficient resources to maintaining a very good safety and environmental standards.

Examples of a Company that fall in this category are those that have satisfied Fenix of the following; High awareness of Environmental and Safety Legislation, Good experience in handling and storage/management of batteries, No previous Incidents or accidents, Full time competent staff on site, Evidence of adequate training and/or skills programme, Externally accredited ISO14001, 9001 and 45001 Systems.

This category of customer will commence with a low risk.

Competent. (MEDIUM)

Most companies (with an EMS or OHS System) or a site licence issued by the E.A. will fall into this category. A certain amount of knowledge and experience along with suitably trained staff overseeing the site. However their potential limitations on resources and their ability to always being fully compliant along with the fact that batteries may not be their core business, results in an enhanced risk to potential fires / contamination / etc...

Examples of a Company that fall in this category are those that have satisfied Fenix of the following; High awareness of Environmental and Safety Legislation, Good experience in handling and storage/management of batteries, Minor previous Incidents or accidents, Access to competent staff (not on site), Evidence of adequate training and/or skills programme, 2 out of 3 Externally accredited ISO14001, 9001 and 45001 Systems.

This category of customer will commence with a Medium risk.

Below expected competency. (HIGH)

Fenix acknowledges that there is a growing market consisting of small scrap metal merchants, HWRC centres, Retail and distribution and service companies signed up to a take back system with a Battery Compliance Scheme, that are forwarding batteries for recycling but with the best will in the world these are areas where the differing chemistries and potential risks are not well known. Their limited knowledge of batteries will also include a lack of understanding / appreciation for the storage and safe transportation of the batteries.

*Examples of a Company that fall in this category are those that have **not** satisfied Fenix of the following; High awareness of Environmental and Safety Legislation, Good experience in handling and storage/management of batteries, Recording of Incidents or accidents, Access to competent, Evidence of adequate training and/or skills programme, No Externally accredited ISO14001, 9001 and 45001 Systems.*

This category of customer will commence with a High risk.

Note that all customer competences will then change category based on our assessment and experiences with the Customer as our relationship evolves.

Materials Hazards

LOW RISK = Alkaline, Zinc based, Nickel Metal Hydride (except EV) – Typically Household / portable batteries

These batteries hold the lowest risk profile as they generally have high self discharge properties, and/or have low energy storage capacities resulting in the end of life battery having a very low charge potential so in the event of a short circuit they won't overheat or cause fires.

Additionally these battery designs are normally filled with a solid or benign electrolyte that cannot cause high potential for pollution or harm.

MEDIUM RISK = Nickel Cadmium, Lead-acid and EV Nickel Metal Hydride batteries

These batteries hold a medium risk profile as though they generally have high self discharge properties, they are normally discarded directly from an application where they are constantly being topped up with energy, which means at end of life they are still storing chemical energy in high capacity.

Their high energy storage capacity and normal condition at end of life means that in the event of a short circuit they can overheat or cause fires – not to the battery generally but to associated ancillary items such as terminal wires and/or other conductive materials.

Additionally these battery designs are normally filled with a wet corrosive electrolyte that can cause high potential for pollution or harm.

HIGH RISK = Lithium Ion and primary lithium batteries and cells / packs

It is acknowledged that lithium (metal or crystallised salts) are the most volatile battery chemistry due to its potential for thermal runaway when exposed to short circuits and in some instances when ruptured and exposed to Water/moisture.

These batteries hold a high risk profile as they generally have low self discharge properties, meaning they hold charge very well, which means at end of life they are still storing chemical energy in high capacity.

Their high energy storage capacity and normal condition at end of life means that in the event of a short circuit they can easily overheat or cause fires – this applies more readily to the battery itself called thermal runaway where very high temperatures can then ensue and the propensity for fire is also because the batteries are normally filled with a wet flammable solvent electrolyte.

All customers sending in lithium batteries will automatically go to a RED code and will remain there until the more stringent packing requirements have been established and evidence held to prove this non-hazardous material is safe for both storage and safe transportation.

Join our Vision

#WORLDWITHOUTWASTE

Our aim is to revolutionise recycling. Our vision is a web of industries where one stream's waste is another stream's in-feed: bridging linear and wasteful processes to create a circular, pollution-free, zero-waste future. To put it simply: we harvest resources from urban waste.