



ZINC OXIDE

ZINC OXIDE FROM SECONDARY ZINC (HZS, DROSS)

SHIPPING HARD ZINC



INTRODUCTION

Significant financial benefits may be available to the zinc oxide producer if production from zinc secondary materials is practiced.

This power point is an introduction to the legal and documentary requirements that must be implemented when importing secondary zinc for processing into zinc oxide



ZINC WASTE

- Switching from SHG or HG zinc requires attention to the technical differences of the process, explained elsewhere
- The new process converts a global waste stream, generated by another industry, into commercial grade zinc oxide
- Tracking and documentary requirements add a regulatory overhead

This PowerPoint is intended as an introduction to this topic and in no way should be taken as expert advise.

If there are any inaccuracies in this presentation we would be grateful if you will let us know and we will make the appropriate adjustments

E-mail us at info@burnenergy.ca



TRADING HZS



- Zinc residuals, Hard zinc, Secondary zinc are currently traded and shipped in a global market running at approximately 285,000 tpy.

<https://galvanizeit.org/knowledgebase/article/zinc-recycling>

- The information presented here was taken from the various published agreements mentioned



SHIPPING RULES



- The movement of secondary zinc is regulated under the Basel Convention for the movement of industrial waste
- Zinc oxide produced from secondary zinc is considered a reprocessing operation under the Basel Convention rules.
- The process should be certified, before shipments commence



REPROCESSING RECYCLING

- Recycling
 - Is waste being processed into a product that is not substantially different from the product before it was discarded.
 - Glass bottles, beverage cans etc.
- Reprocessing
 - Is waste being processed into a product that is completely different from the product before it was discarded
 - Zinc oxide from HZS, fuel from pyrolysis etc.

• *The hyper link is to an archived gov of Canada document which provides full details*

- Operators are required to prove that the process to produce zinc oxide is controlled
- Operators may be required to disclose:
 - Average zinc recovery rates and targets
 - Average energy cost for processing
 - Details of the waste generated by the process
- Certification of the process may require 3rd party inspection and audits

Refer to [OCDE/GD\(96\)112](#) for member country information



TARGET SETTING

- To certify a facility it should be operating under targets for efficiency
- Targets may be aspirational. Development may require the assistance of the local OECD representative, under a local SMM (Sustainable Materials Management) policy
- The targets must be tangible and measurable and must identify potential future process improvements to encourage further development
- The intent of the regulations is to prevent the dumping of industrial waste.
- To encourage the recycling and reuse of waste materials to be carried out in an environmentally responsible way
- To encourage improvements in the way industrial waste is processed and handled

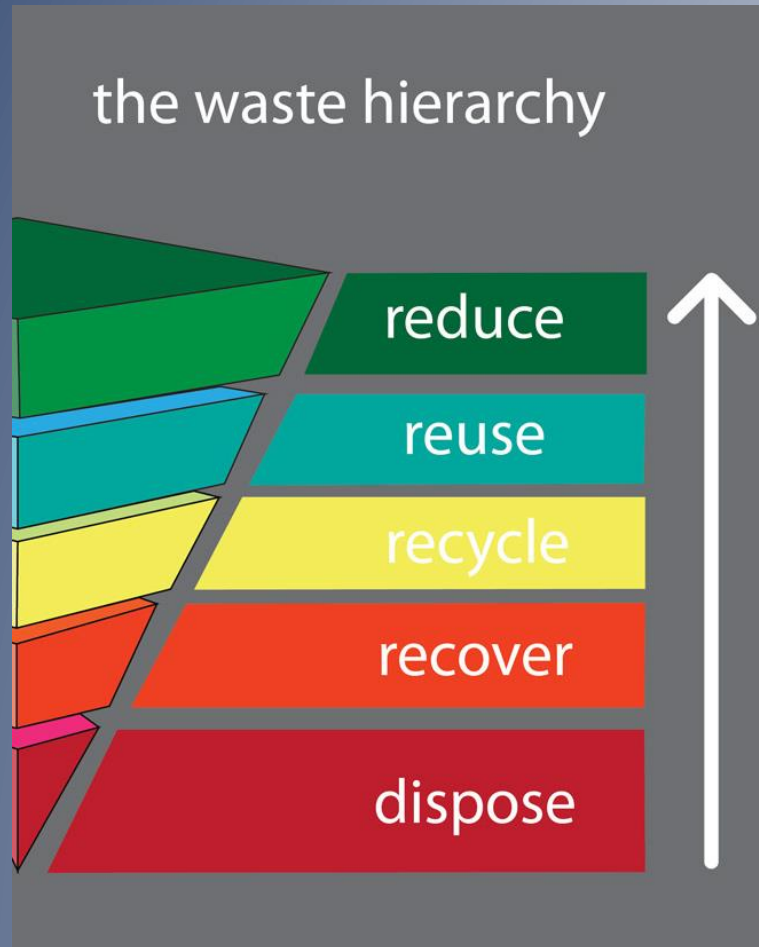


SHIPMENT RULES

- Transboundary shipments of industrial waste materials for recovery and recycling are governed by the [OECD C\(2001\)107](#). Amended by the [Basel Convention](#)
- The Basel Convention has been signed and ratified by 186 countries
- The USA and Haiti are signatories but have not ratified the agreement. The remaining 184 countries have adopted the Basel Convention
- The Basel Convention was signed in 1990
- The US senate recommended adoption of the convention, however implementing legislation is required before the President can ratify the treaty
- To date no enacting legislation has been passed through either house.
- The US supports the convention notwithstanding and US EPA is updating rules to implement the intent of the Basel Convention
- Exports from the USA are subject to Basel Convention Rules



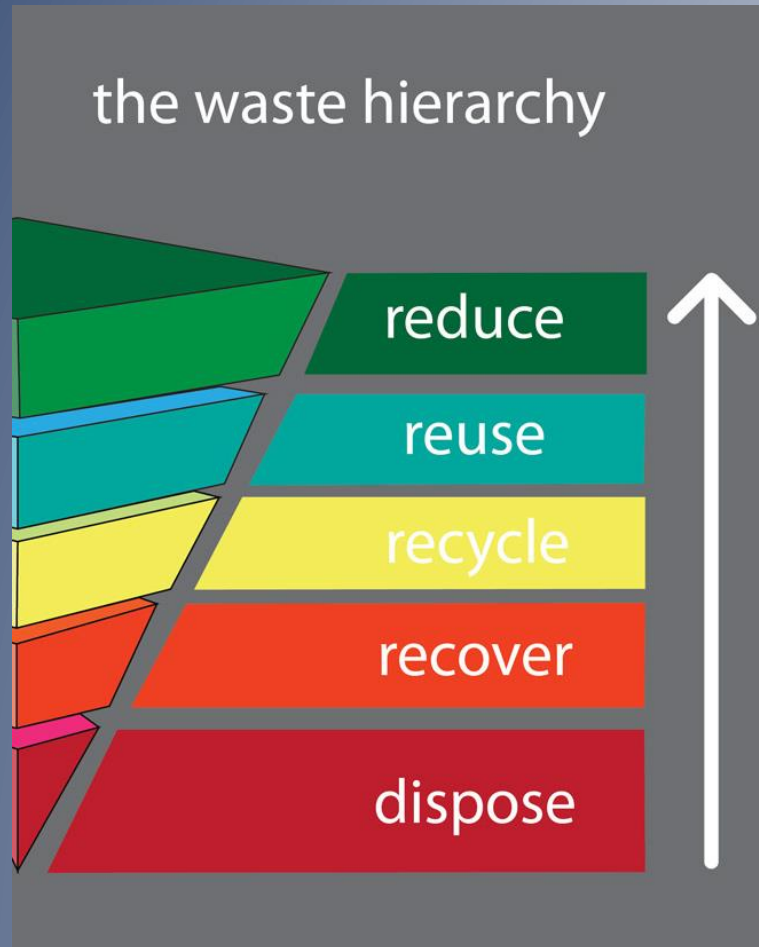
DEFINITION OF WASTE



- May be found on [OECD doc \(2001\)107/FINAL](#)
- Waste is defined as substances
 - That are being disposed of, or are being subjected to recycling operations
 - Are intended to be disposed of, or recovered
 - Are required by national law to be disposed of, or recovered



DEFINITION OF HAZARDOUS WASTE



- Hazardous waste is a material with any property appearing in Appendix 1 of [C\(2002\)107/FINAL](#)
- Waste may be identified as hazardous by the local legislation of a member country of export, transit and import, regardless of its appearance on the *Green List* and must be handled under the terms of the local regulations



CATEGORIZATION

- Industrial waste is categorized
 - *Green List*
 - *Amber List*
 - *Red List* is now discontinued
- Radioactive waste is not covered under the Basel Convention
- Conversion of zinc waste to zinc oxide is a recognized reprocessing operation under the terms of the convention



GREEN LIST REFERENCES

- GA160 790200 Zinc scrap
- GB010 262011 Hard zinc spelter
- GB020 Zinc containing drosses:
 - GB021 - Galvanizing slab zinc top dross (> 90% Zn)
 - GB022 - Galvanizing slab zinc bottom dross (> 92% Zn) GB023 - Zinc die casting dross (> 85% Zn)
 - GB024 - Hot dip galvanizers slab zinc dross (batch) (> 92% Zn)
 - GB025 - Zinc skimmings
- Galvanic dross appears on the *Amber List* as AA010 (261900) metal bearing waste.
- Galvanic dross derives from metal plating operations and is not generated in a galvanizing process. This dross is usually collected by filter and may be dried or partially dried
- As galvanic waste is excluded from the *Green List* there is a potential for some confusion

Online reference [OCDE/GD\(96\)112](https://www.oecd.org/gd/96/112)



TAKE CARE WITH DESCRIPTIONS

- The description of galvanizing dross under the Basel Convention is Hard Zinc Spelter (HZS)
- Annex VIII A1080 Hazardous Material list mentions zinc waste contaminated with Cd & Pb as potentially toxic
 - Hard zinc spelter containing Pb & Cd could fall under Annex III H6.1 & H11 for toxic substances however,
 - If the Pb or Cd is not in dispersible form, H6.1 and H11 do not apply
- This material is always going to be considered *Amber List* as it is material that may be ingested orally or by skin contact or by breathing
- Although zinc has certain health benefits in small quantities, ingestion of too much zinc is deleterious health
 - Zinc blow-off from continuous operations
 - Friable oxidized materials ash etc. are *Amber List* materials



GREEN LIST WASTE

- May be imported without prior notice or consent of the local Environmental Protection Agency
- Must be material that is relatively easy to recover and recycle
- Must not be contaminated with *Amber List* waste or materials that render it difficult or hazardous to recycle
- *Green List* waste contaminated by any waste material to the extent that personnel risk is increased
- Or any *Green List* waste contaminated to the extent that recovery in an environmentally sound manner is no longer possible
 - Will require special import permits under the terms of the Basel Convention. If the contaminant is an *Amber List* material the waste will be recategorized *Amber List*



AMBER LIST WASTE

- Zinc ash may be an *Amber List* waste, depending on the process that generated it. To be safe, assume that all hot dip galvanizing processes generate waste contaminated with Chlorides and Sulphides and is *Amber List*
 - Zinc secondary in the form of fine dispersible powder
 - Zinc secondary in the form of an aqueous sludge
- Are considered *Amber List* wastes
- The presence of lead above 0.5% may also change the classification to *Amber list*



GREEN LIST SHIPPING RULES

- General Rules
 - Waste must be destined for a plant carrying out recovery operations, in an environmentally sound process operating in conformance with local regulations
 - The receiver must have the appropriate legal status
 - Transit shall be subject to the national laws of the country of transit
- Transboundary movement of material is subject to the same rules applied to any other import and export transaction
- If shipments are found to be contaminated they will either be
 - Rejected or
 - Reclassified *Amber List* if the contaminate is an *Amber List* material



AMBER LIST SHIPPING RULES

- The exporter provides details to the countries concerned.
[\(Appendix 8A\)](#)
- An authority may act under its local laws and rules by conducting a review.
- The authority has 30 days to conduct its review and issue a decision
- If there is no objection raised, tacit consent is granted expiring 1 calendar year from the end of the 30 day grace period
- The waste, subject to a sustained *Amber List* objection must be returned to the country of export
- There must be no impediment preventing the return of the waste to its point of origin
- Financial guarantees will be required prior to the transaction to insure the repatriation or lawful disposal of a rejected consignment



OBLIGATIONS

- Under the terms of the Basel Convention insurance must be carried or waivers provided against a proved case of contravention of the rules
- The limits of liability are give in in [Annex B](#) of the Basel Convention
- In some cases financial instruments will be required before shipments are approved
- A recognized trader will act as an exporter or importer with all the responsibilities required under the convention
- A recognized trader is a person or company operating under the jurisdiction of a member country acting in the role of principal in any transaction for the purchase and selling of industrial wastes