



Learning and Improving

The Magellan Metals
Example

WA Emergency
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Ivernia

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Company Information

- Magellan Metals and Ivernia relationship.
- Magellan project location.
- Small, open cut lead carbonate mine and processing (concentrate) facility.
- Commissioned 2005.
- Export to customers in Asia.
- Product end uses.



Product Information

- Magellan lead carbonate concentrate is a dark grey soil-like amorphous solid ore.
- Dangerous goods classification of the product is:
 - United Nation (UN) Number: 2291
 - Class 6.1 (Toxic Substances)
 - Correct Shipping Name: Lead Compound Soluble N.O.S (contains 77% to 82% lead carbonate)
 - Packing Group: III (Low risk)
 - Hazchem Code: 2Z
- MSDS available for product.

Previous Operations

- Initially transported in 'bulk' through the Port of Esperance.



- Lead carbonate concentrate produced and placed in covered kibbles at the mine.
- Kibbles loaded onto trucks at the mine and transported to Leonora.

Previous Operations (cont'd)

- Kibbles loaded onto rail wagons at Leonora.
- Rail wagons transported to the Port of Esperance.



Previous Operations (cont'd)

- Kibbles unloaded from trains at the Port.
- Kibbles emptied at the Port and concentrate stockpiled inside storage shed.
- Concentrate transport to ship via conveyor.



Previous Operations (cont'd)

- Exports of lead concentrate through the Port were suspended in 2007.
- Suspended due to fugitive dust during bulk loading.
- Magellan voluntarily placed its mine on care and maintenance in early 2007.
- Issue of fugitive dust beyond port boundary resulted in a number of studies and reports, including a Parliamentary Inquiry.



The Way Forward

- Improved product stewardship required.
- Product containment.
- A sealed transport method.
- Approved Feb 2009.



New Components

- Lead packaged within approved bulk bags.
- Bags are vacuumed.
- Loaded inside shipping containers.
- Containers bolt locked.
- Containers and trucks washed onsite.
- Containers not opened until overseas.



Compliance and Reporting

- Independent inspection for every bag and container.
- Independent auditing of entire process.
- Independent reporting to Government.
- Public compliance reporting.
- Performance reviews.
- Community Group liaison.
- Transport route Emergency Response Plan.



Emergency Response Plan

- ERP developed in consultation with FESA, DEC, DMP, DOH, local Government authorities, rail contractor, port logistics operator, Fremantle Ports and stevedores.
- ERP includes the following:
 - Roles and responsibilities.
 - Resources.
 - Emergency response procedures.
 - Clean-up procedures.
 - Post clean-up sampling.
 - Post-incident management.
 - Preparedness.

Roles and Responsibilities

- Magellan.
- Rail contractor – Approved Responder.
- Port logistics operator.
- Stevedores.
- Emergency Responder.
- FESA.



Emergency Response Procedures

- Notification.
- Control source of spill.
- Establish hazard zone.
- If recovery of product not immediately possible, prevention of further spread.
- Clean-up of product, return to mine-site in sealed bulk bags.

Signage

- All bags have an EIP.
- All bags and containers have a marine pollutant label.



- All containers have a dangerous goods placard.



Fire Control Measures

- Specific Hazards – non combustible solid.
- Will evolve toxic fumes when heated to decomposition (would require an extraordinary fire, $\sim 315^{\circ}\text{C}$).
- Evacuate area, remain upwind and notify those downwind.
- Extinguisher Media - use waterfog, foam, CO₂ or dry agent to cool intact containers. Prevent contamination of drains, sewers and waterways and absorb run off with sand and/or bunding.

First Aid Measures

- Ingestion – rinse mouth with water, give plenty of water to drink.
- Eye contact – wash with water.
- Skin contact - remove contaminated clothing and wash skin thoroughly.
- Inhalation – avoid inhaling dust. Remove from exposed area.



Lessons Learned

- Avoid re-handling of product.
- Need better product containment.
- Greater stewardship required.
- Planning essential.
- Improved corporate and social responsibility.
- Increased transparency.



Conclusion

Created and will implement a new worldwide safety standard for the transport of lead, which goes beyond best practice for concentrate transport.

Questions?

www.magellanmetals.com.au

