Intec Ltd

ABN 25 001 150 849

Superior and Sustainable Metals Production

Level 3
2 Elizabeth Plaza
North Sydney NSW 2060 Australia
PO Box 1507
North Sydney NSW 2059 Australia

ASX code: INL

Phone: 02-9954 7888
Fax: 02-8904 0334
Email: mail@intec.com.au
Website: www.intec.com.au
ASX code: INL

Companies Announcements Office
Australian Securities Exchange

29 July 2011

Intec Presentation to the "Industrial Ecology 2011" Conference

As part of ongoing marketing and industry communication, Dave Sammut, Corporate Development Manager of Intec Ltd (ASX: INL), will today deliver the attached presentation to the Industrial Ecology 2011 conference in the Hunter Valley.

The associated technical paper will be published on Intec's web site (http://www.intec.com.au/public_panel/presentations_2011.php) today, and a video of the presentation will be available on Intec's web site by early next week.

Yours faithfully
Intec Ltd

Philip R Wood
Managing Director and Chief Executive Officer

About Intec Ltd
Intec Ltd is an Australian company which owns the Intec Process for superior and sustainable metals production. The Intec Process comprises a set of patented chloride-based hydrometallurgical processes that have been demonstrated to produce high purity base and precious metals from concentrates of sulphide and oxide ores, tailings and industrial wastes. The Intec Process has substantial environmental and cost advantages over both the widely used conventional smelting and refining processes and other known hydrometallurgical processes.

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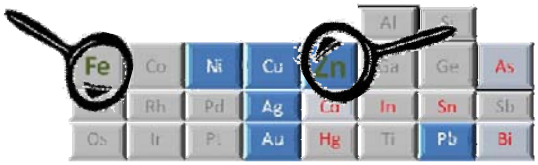
A New Light for Heavy Metals

An Australian case study in successful heavy metal recycling from industrial waste



GALVANIZING INDUSTRY ACID WASTES
Zinc, HCl and iron from Spent Pickle Liquor

Australasian Industrial Ecology Conference 2011

Hunter Valley , 29 July 2011

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Company Overview

Intec is an Australian company with patented hydrometallurgical technology plus a range of know-how and infrastructure for the recovery of base and precious metals from a wide range of mineral and industrial resources.

As a world leader in the field of chloride hydrometallurgy, Intec is successfully applying its technology to the recycling of heavy metals from industrial wastes in Australia.

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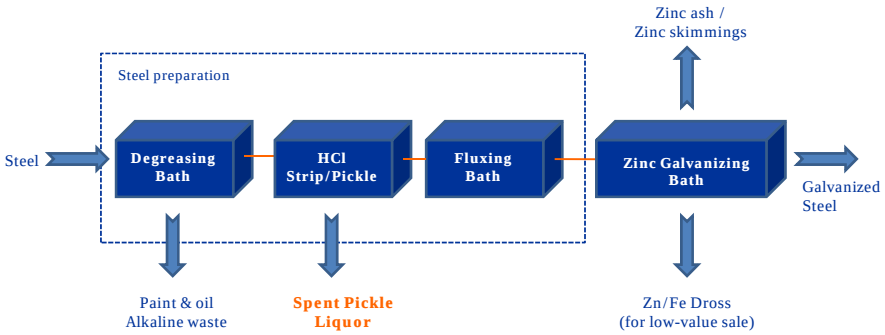
Galvanizing Industry Wastes

Batch hot-dip galvanizing line – typical international processing



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'Spent Pickle Liquor' (SPL) as Waste

- Steel is dipped in hydrochloric acid prior to hot-dip galvanizing
- Over time, the acid strength decreases, and the acid builds up with iron, zinc and other contaminants
- Internationally, approximately 20kg of SPL is produced per tonne of steel galvanized
  - 50-100 g/L Zn^{2+} (5-10%)
  - 100-150 g/L Fe^{2+} (10-15%)
  - 2-3% HCl
- SPL is conventionally disposed of as a waste, by first precipitating the metals with alkali, then dumping the heavy metal waste in landfill

1t SPL → **2.3t waste disposed**
(Solid residue + liquid effluent)

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Disposing of this Material is Truly Wasteful

Economic cost

- Treatment and stabilisation/immobilisation fees
- Fresh stabilisation/immobilisation reagents, 'bulking out' the waste
- Transport of 'bulked out' mass
- Landfill gate charges for 'bulked out' mass
- Government levies for 'bulked out' mass
- Permanent loss of contained economic value

Environmental cost

- No stabilisation technology is permanent
- At best, stabilisation/immobilisation simply slows the release of the metals
- Recurrent local community issues affect all landfills to some extent

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Recover the Value

It is much better to recycle

- No environmental legacy
- Massively reduced quantity and hazard
- Zero waste options for some 'waste' types
- Offset the costs using the contained metal value
- Potentially valuable by-products
- Environmental, ethical, intellectual and economic benefit

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Our Service

Intec recycles heavy metals and precious metals from industrial wastes – sludges, filter cakes, dusts or waste waters.

Instead of creating extra waste by trying to lock these metals up in cement then disposing of them to landfill, Intec extracts and recovers them as useful mineral products.

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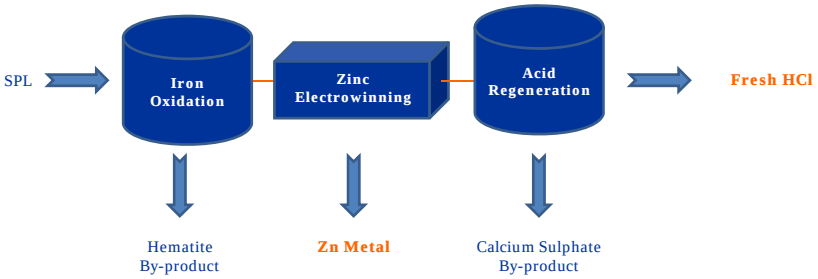
Intec Process SPL Recycling



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Intec Process SPL Recycling Stoichiometry

Inputs

- SPL: 1 .0t
- H_2SO_4: 03 t
- Alkali: 0.3 t
- Water: 0.7 t

Outputs

- Zn metal: 60 kg
- Iron oxide: 140 kg-dry
- CaSO4: 0.4 t-dry
- 20% HCl: 1.0t
- Airborne emissions: **Nil**
- Liquid effluents: **Nil**
- Solid wastes: **Nil**

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SPL Recycling Project: Collaboration and Support

- This project is a direct result of an introduction made at EPA Victoria's HazWaste Expo in November 2008
- A typical industrial company with a waste disposal issue: GB Galvanizing Service Pty Ltd (GBG), one of Victoria's largest galvanising companies
- A company with a technology solution: Intec Ltd
- Intec is working with GBG as our Victorian project partner to deliver an SPL recycling plant at GBG's Dandenong site
- EPA Victoria is contributing $780,000 from the HazWaste fund to GBG
- Total project cost estimated at ~$2.85 million
- The project is being implemented through three stages:
  - Phase 1: Pilot plant trials
  - Phase 2: Semi-commercial demonstration plant trials
  - Phase 3: Commercial plant construction and operation in Victoria

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SPL Recycling Project: Stage 1

- Continuous pilot plant trials: November 2009 to February 2010
- Provisional patent lodged
- Key outcomes:
  - Tested a range of operating variables in order to frame the key operating parameters for the technology.
  - 175 hours of operation, during which 289 litres of spent pickle acid were recycled.
  - Successfully demonstrated both the recovery and electrowinning of zinc metal product, and also iron separation and recovery.

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SPL Recycling Project: Stage 2

- First semi-commercial trials November to December 2010
  - These trials proved the technology at the commercial scale
  - Engineering data generated for materials of construction and process optimisation
  - New equipment ordered and installed
- Second trials February to April 2011 to demonstrate the reliability of the equipment
- Key outcomes:
  - Demonstrated equipment robustness and reliability
  - Achieved key performance criteria
  - Steady state operations achieved for mass balance calculations

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SPL Recycling Project: Stage 2 Key Performance Criteria

Iron removal efficiency	√
Iron precipitation kinetics on spec.	√
Zinc EW current density >200A/m^2	√
Zinc EW product morphology on spec.	√
EW Power consumption	√
EW cathode stripping	√
>100kg of representative sample	√
Alkali utilisation efficiency	√
Simultaneous, continuous operation	√
Financial viability	Provisional
Product assessment	Pending
Life cycle assessment	Pending

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SPL Recycling Project: Stage 3

- The final phase of the project involves the construction of a full-scale commercial facility at GBG's Dandenong site
- Recycle a minimum of 1,000,000 L per year of SPL
  - Avoid a minimum of 1,700 tonnes per year of liquid waste generation
  - Avoid a minimum of 600 tonnes per year of solid waste disposal to landfill
  - Generate a minimum of 70 tonnes of zinc metal per year for reuse by GBG
  - Generate fresh acid for reuse by GBG in the pickling bath
  - Generate iron and calcium by-products for industry use

Current Status

- Stage 2 Operations and primary reporting complete
- Q3 2011: Updated engineering and economic model, external analysis and project proposal
- Q4 2011: Commence Stage 3 development (design, approvals, contracts, et)
- 2012: Construction, commissioning and operation

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SPL Recycling Project: Stage 3 Project Economics

- Economics:
  - Preliminary economic modelling is complete.
  - Detailed modelling is underway.
  - Based on the preliminary economic model
    - The plant is competitive at 1,000,000L per year vs current disposal costs
    - At 3,000,000L per year, modelling indicates that it would change the market. This is the maximum SPL available in Victoria.
    - All assumptions are based on Victorian market factors.
  - The following data are **estimates only**

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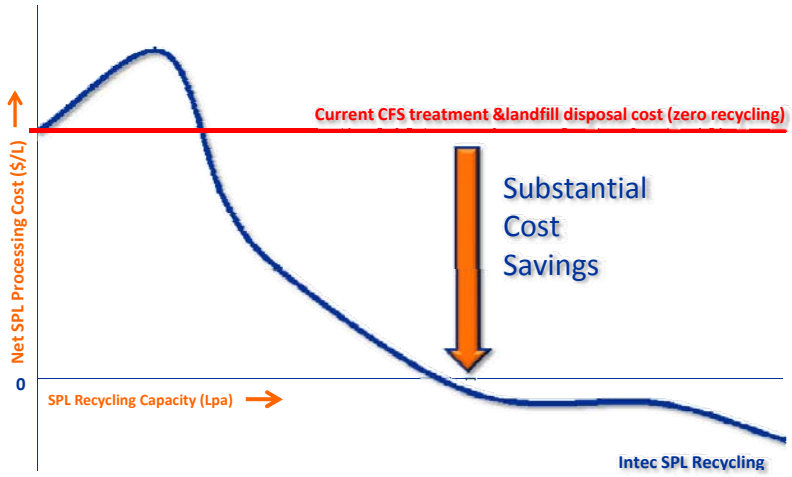
Net SPL Operating Costs (after product credits)



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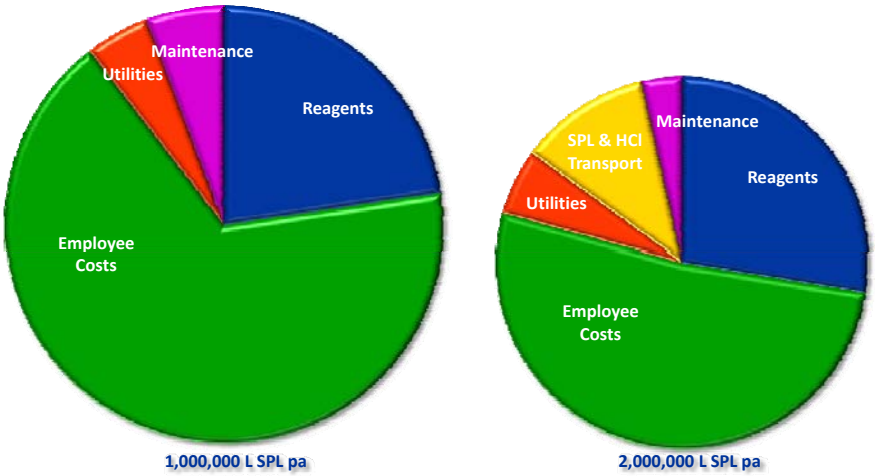
Gross SPL Operating Costs Per Litre of SPL



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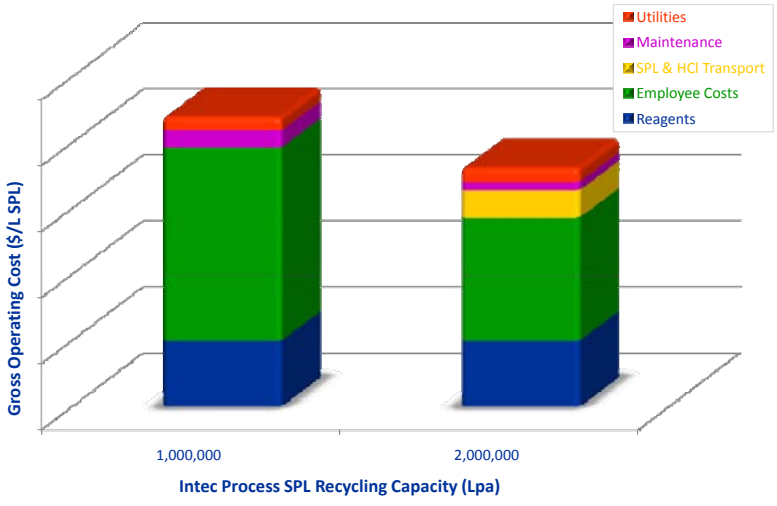
Gross Operating Cost



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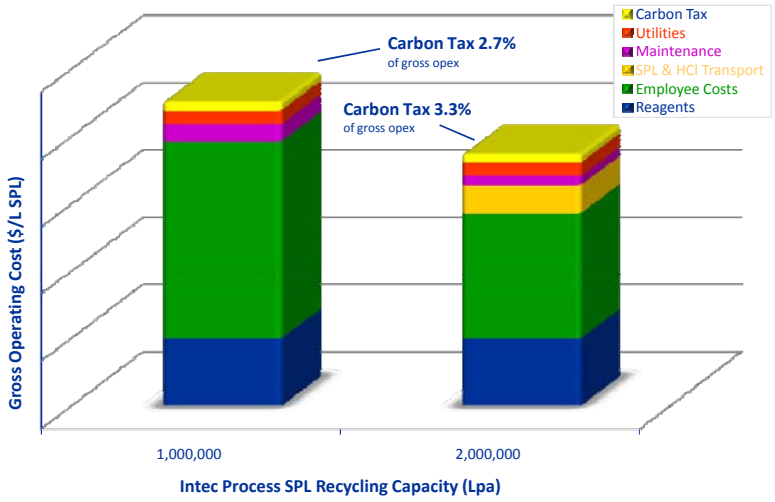
Effect of the Carbon Tax



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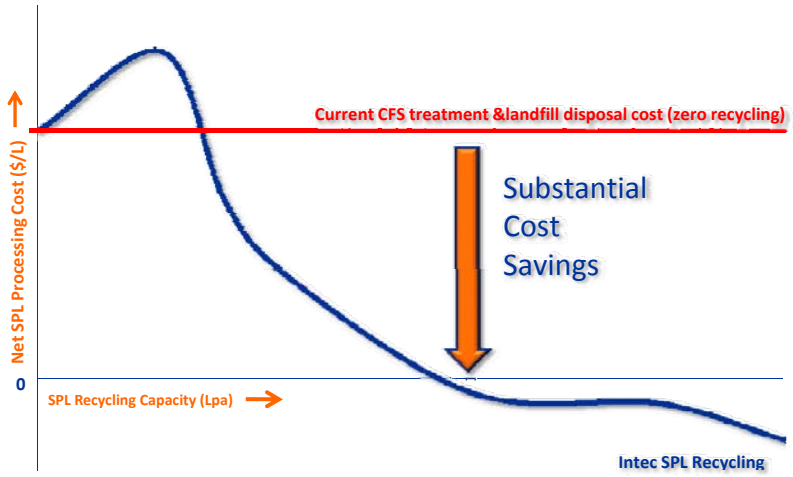
Net SPL Operating Costs (after product credits)



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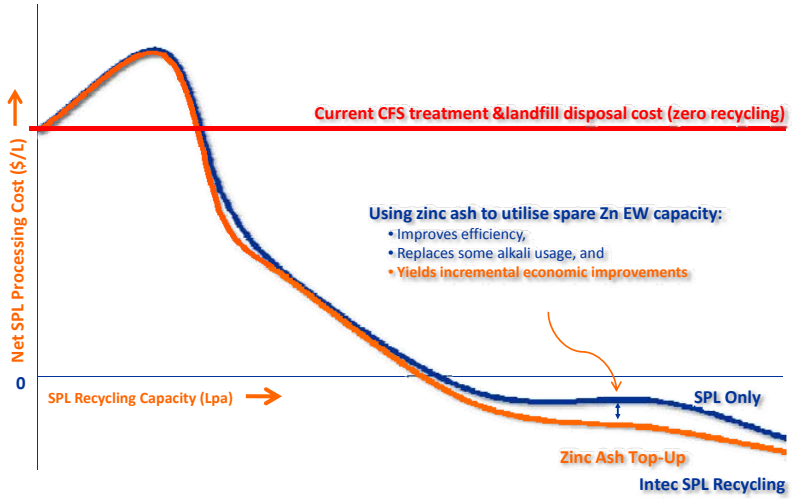

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Future Opportunities

- Spent Pickle Liquor is a waste that is common to the galvanizing industry, domestically and internationally
- Within Australia:
  - GBG has 117 m^3 of zinc bath capacity, and produces ~1 MLpa SPL
  - Victoria has ~286 m^3 of zinc bath capacity, and produces ~3 MLpa
  - Australia has a total of ~1,400 m^3 capacity
  - An estimate of total Australian SPL might be ~12-15 MLpa SPL
  - Are there opportunities in other states, particularly NSW & Queensland?
- Internationally:
  - European markets favour zero-waste technologies
  - Intec has already received international enquiries about the developing SPL recycling technology
  - Europe, USA and Asia (particularly the growing China & India galvanizing industries) might be huge potential markets

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Intec is Looking for Opportunities

- Metal sludges, solids, filter cakes and waste waters
- Metals-bearing wastewaters (chlorides, fluorides, sulphates, ammonia, etc)
- Chromium-bearing wastes – plating industry, timber industry 'CCA' (copper chrome arsenate), and more
- Battery chemical wastes, particularly NiCad or NiMH
- Acid mine drainage and mineral residues (jarosites, pyrites, tailings)
- Electronic wastes (lead from CRT monitors, precious metals from circuit boards)

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www.intec.com.au

Head Office
Dave Sammut
Corporate Development Manager
Level 3, 2 Elizabeth Plaza
North Sydney, NSW 2060
(ph): +61 2 9954 7888
(fax): +61 2 8904 0334
(email): dave@intec.com.au

Tasmanian Operations
Brian Banister
Chief Operating Officer
10-12 River Road
Burnie, TAS 7320
(ph): +61 3 6431 9867
(fax): +61 3 6431 3629
(email): brian.banister@intec.com.au