

Recycling Gallium, Rhenium, Indium 2011



Forward Looking Information



This presentation contains statements that are not current or historical factual statements that may constitute forward-looking statements. These statements are based on certain factors and assumptions, including, expected financial performance, business prospects, technological developments, and development activities and like matters. While the Company considers these factors and assumptions to be reasonable, based on information currently available, they may prove to be incorrect. These statements involve risks and uncertainties, including but not limited to the risk factors described in reporting documents filed by the Company. Actual results could differ materially from those projected as a result of these risks and should not be relied upon as a prediction of future events. The Company undertakes no obligation to update any forward-looking statement to reflect events or circumstances after the date on which such statement is made, or to reflect the occurrence of unanticipated events, except as required by law. Estimates used in this presentation are from Company sources.

Recycling Gallium, Rhenium, Indium



Recycling
Gallium, Rhenium, Indium

Key Business Factors

Dr. Larry Seeley
Vice President, Corporate Development
March 23, 2011

Recycling Gallium, Rhenium, Indium 2010



Business Factors in Recycling

- Introduction and Scope of Considerations
- Market and Product Factors Worldwide
- Procurement and Commercial Methodology
- Technology Considerations
- Operations Essentials
- Financial Needs
- Organization Required
- Summary of Needs for a Business to be Sustainable

Recycling Gallium, Rhenium, Indium 2010



Scope of Considerations in Recycling

- Very Complex Business
- Feeds Highly Variable
- Form, Composition, Impurities, Quantities, Location
- Wide Range of Feed Values
- Metal Content Difficult to Determine
- Many feed Preparation Methods Needed
- Technically Complex Processing Methods Required
- Highly Different Metal Recoveries

Where Neo Gallium Products Go



Gallium 6N, 7N & MBE Purity



← GaAs →
Wireless Communications
Satellite
Radar

→ GaN → Laser Diodes
Compact Disc Readers
DVD Readers

↙ GaAs ↘
Cell Phones
Power Amplifiers
Switches

↓ GaAs ↓
Military Applications
Satellite
Night Vision
Radar
Communications

↘ GaAs, GaN
GaP ↘
LED'S
(Light Emitting Diodes)
Lighting
Indicators

Where Neo Gallium Products Go



Gallium 4N to 5N Purity

Alloys

Thermometers
Eutectics



Gallium

Compounds

Gallium Tri-chloride
For semiconductors

Magnets

Oxides

CIG(S)

Solar Cells

Optical Electronics

Where Neo Gallium Products Go



Purification to 99.9999 + 99.999999% + MBE

Neo Capacity +50,000 KG

Where Neo Gallium Products Go



Gallium Nitrate



Pharmaceutical
Navicular Disease
Arthritis

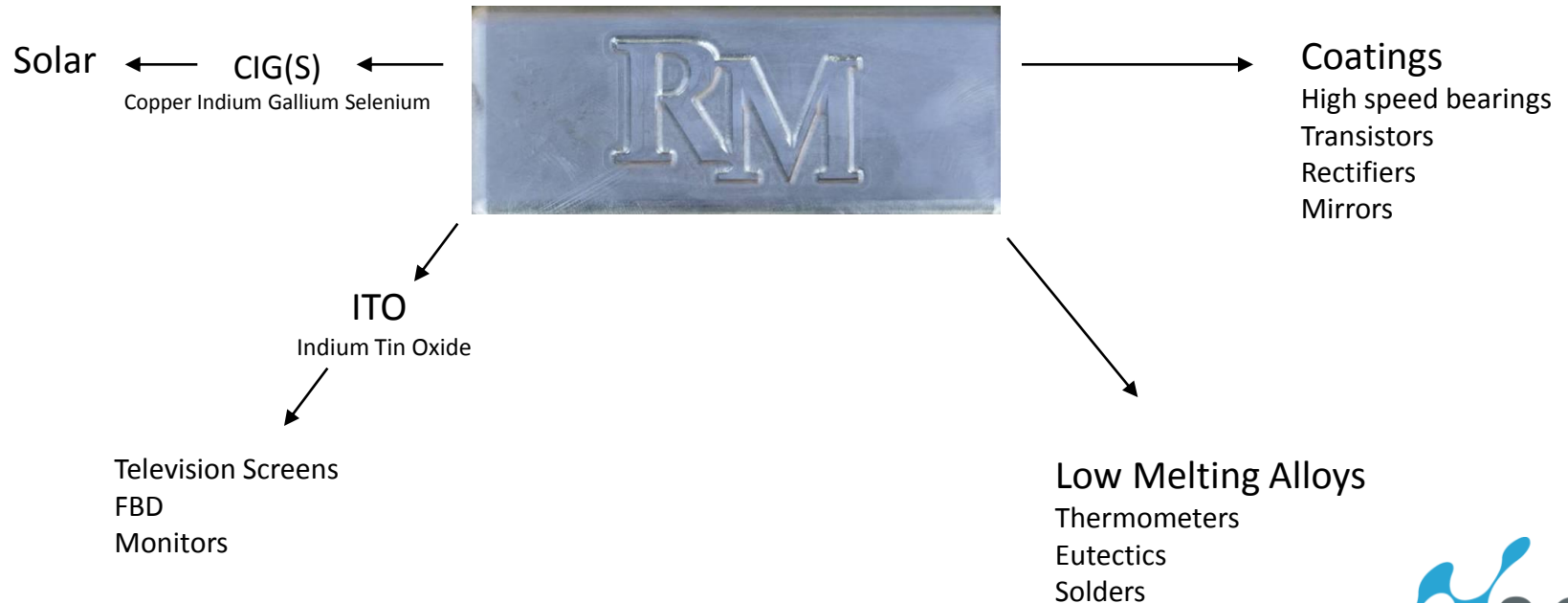


Catalysts
Petrochemical
Styrene

Where Neo Indium Products Go



Indium Metal 99.999%



Where Neo Rhenium Products Go



Metal Pellets - Hot Section of Jet Engines
 - Alloys, Thermocouples

High Purity APR - Catalysts for Petroleum
 Refining



Recycling Gallium, Rhenium, Indium 2010



- Hazardous Materials Needs in Transportation, Processing and Waste Handling
- Widely Different Commercial Terms
- Huge Amount of Client Interaction
- Need to Deliver Different Products
- Must have a Critical Mass of Recycle Materials for a Sustainable Business
- Each Feed Type is like Processing a New Ore



Market and Product Factors

- Recycling from Manufacturing Facilities and Traders
- Scrap from Many Products and in Many Forms
- Large Range of Lot Sizes from 10 kg to Tons
- Small Market but Worldwide Business
- Market Supply Dependent on Recycling

Types of Recycling Feed Gallium



- GaAs Wafers and Chunks
- GaAs Kerf and Sludges
- GaAs Filters, Hard Residues
- Ga and Indium Residues
- Ga Metal and Alloy Scrap
- Ga electronic scrap
- Copper Indium Gallium Selenide scrap
- Gallium in Solutions

Type of Recycle Feed Rhenium



- Superalloy Turbine Blades with and without Refractory
- Superalloy wet Swarf and containing oil
- Superalloy Swarf on filters
- Superalloy wet Grindings, containing oil and grinding media
- Various forms of MoRe and WRe

Recycling Gallium, Rhenium, Indium 2010



Market and Product Factors

- Recycling from Manufacturing Facilities and Traders
- Scrap from Many Products and in Many Forms
- Large Range of Lot Sizes from 10 kg to Tons
- Small Market but Worldwide Business
- Market Supply Dependent on Recycling

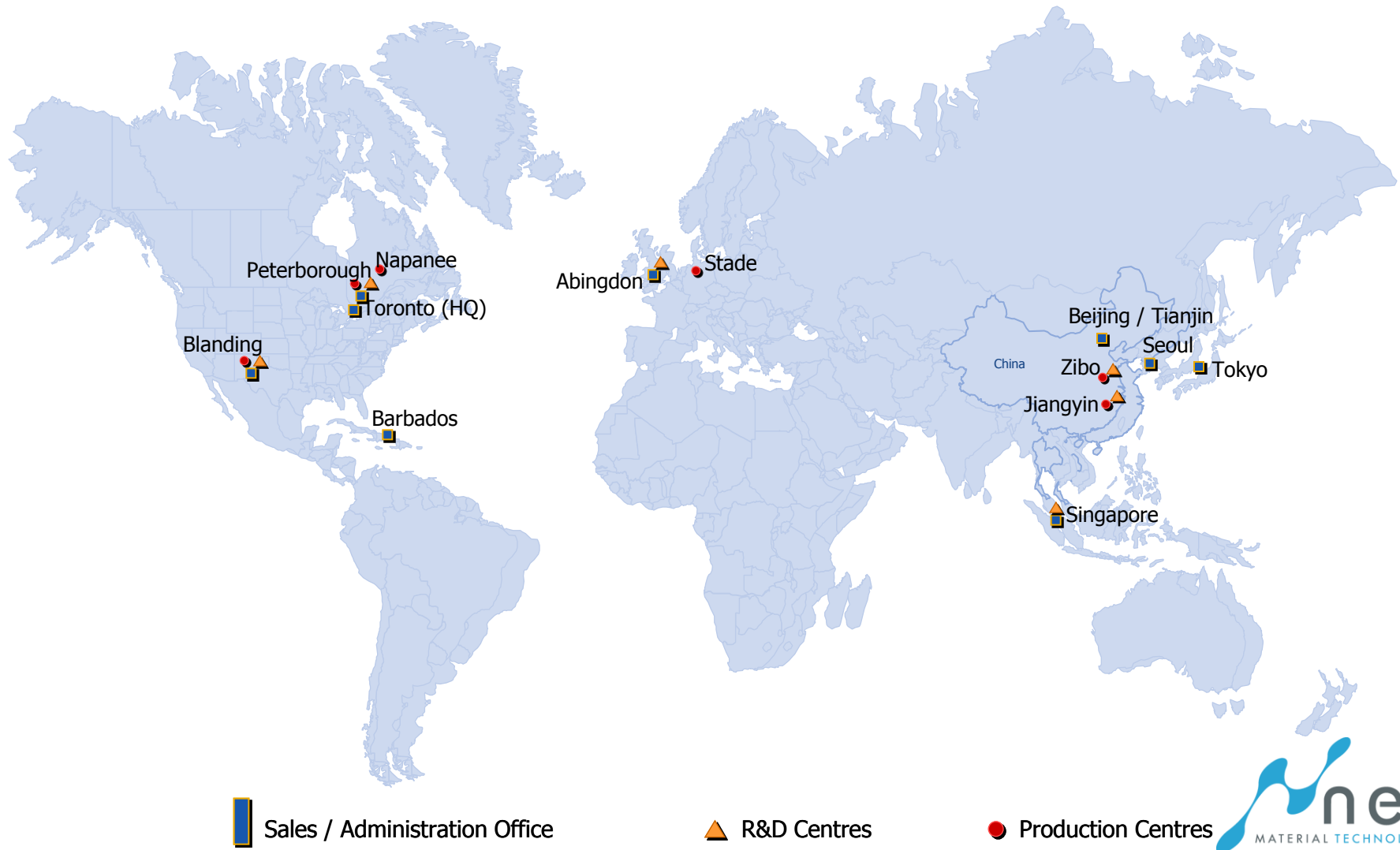
Recycling Gallium, Rhenium, Indium 2010



Procurement and Commercial Methodology

- Global Procurement Organization
- Extensive Trader Network
- Close Interaction with Users of Our Products
- Purchasing and Tolling
- Transportation and Permits

Global Footprint – Gallium, Rhenium & Indium



Recycling Gallium, Rhenium, Indium 2010



Procurement and Commercial Methodology

- Global Procurement Organization
- Extensive Trader Network
- Close Interaction with Users of Our Products
- Purchasing and Tolling
- Transportation and Permits

Technology Considerations



Extensive Feed Preparation Capabilities

- Drying
- Calcining
- Screening
- Size Reduction
- Blending and Sorting

Highly Accurate Sampling and Analytical Analysis

Wide Capability in Leaching

- Reductive Leaching
- Oxidative Leaching
- Multi-Stage Batch Leaching
- Solid – Liquid Separation

Technology Considerations



Metal Separation and Purification

- Precipitations
- Solvent Extraction
- Ion Exchange
- Cementation
- Electro Winning
- Electro Refining
- Hydrogen Reduction

Product Purifying, Casting and Packaging

Operations Essential



- Extensive Process Flexibility
- Critical Mass of Materials for Planning and Throughput
- Large Unit Operations
- Flexible and Experienced Workforce in Process and Metals
- Extensive Process Monitoring to Control Chemistry
- Job Shop Operations Methodology in a Line Organization

Gallium and Indium Recycling



Peterborough, Ontario

- Capacity 36,000 kg/yr
- Ga recycling 5-50% Ga producing 4N metal
- In recycling 5-60% In producing 5N metal



Blanding, Utah



- 30,000 sq. ft. of plant and warehouse
- Ga Recycling of high purity GaAs
- Gallium Chemicals
- Upgrading and Purification to 50,000 kg/yr

Rhenium Recycling



Napanee, Ontario





Rhenium and Tantalum Recycling

Products:

- High Purity Rhenium Pellets
- High Purity APR
- 4N Tantalum





Plus Normal Plant Needs Such as:

- Health and Safety
- Environment Control
- Cost Containment and Accounting
- Effective Human Resource Practices
- Purchasing and Transportation

Financial Needs



- Significant Investment in R & D
- Considerable Engineering and Plant Investments
- Very High Working Capital in Inventories
- Global Contracts, Clients, Purchase and Sales
- Significant Delays in Revenue Recognition
- Operative Bank Lines and Long-Term Debt Capability

Organization Required



- Procurement
- Technology
- Operations
- Sales and Marketing
- Strong Financing Capability
- Primary Production is a Key Facilitator to Recycling

Ingal Stade GmbH



Primary Gallium



Summary for a Sustainable Recycling Business



- Recycling is a highly complex business
- Needs global procurement organization
- Needs strong financial capability
- Needs extensive development of technology & operations
- Needs extensive product scope and sales capability
- Best if added to a primary line operation

