Glorious Past.
Exciting Future.
INVESTOR PRESENTATION

DISCLAIMER

The communication may contain statements relating to future business developments, company's performance and economic performance that may constitute 'forward looking statements'. While these forward looking statements represent the company's judgments and future expectations, a number of factors could cause actual developments and results to differ materially from expectations. The company undertakes no obligation to publicly revise any forward-looking statements to reflect future events or circumstances.

Murugappa Group

An Overview

MURUGAPPA GROUP

INR 269 Billion

Conglomerate

One of the largest family promoted,
professionally managed, diversified business groups

The Philosophy we cherish

The fundamental principle of economic activity is that No man you transact with will lose; then you shall not.

Murugappa Group Today

~ INR 269 Billion Conglomerate

One of the largest family promoted, professionally managed, diversified business Groups…

The Spirit of the Murugappa Group

Social Responsibility

AMM Foundation is a non-profit organization run by the Murugappa Group

1% of PAT from Group companies to AMM Foundation

4 Schools, a polytechnic; approximately 10,500 students

4 Hospitals - around 8.15 lakh patients treated last year

Scholarships for needy meritorious students

Scholarships for scholars for pursuing their professional degrees

Carborundum Universal

Birth Of CUMI

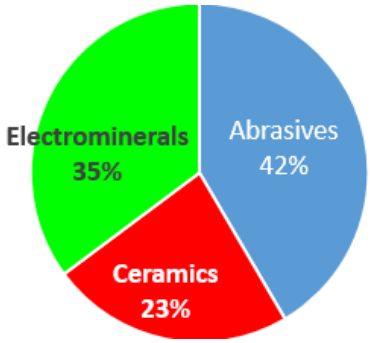
- Incorporated as a joint venture between Carborundum Company USA, Universal Grinding Wheel Company, UK and the Murugappa, India
- Acquired a coated abrasives facility from Ajax products Pvt Ltd
- Bonded abrasives facility set up in Chennai India

1954

CARBORUNDUM USA + MURUGAPPA GROUP + UNIVERSAL UK

Business Portfolio

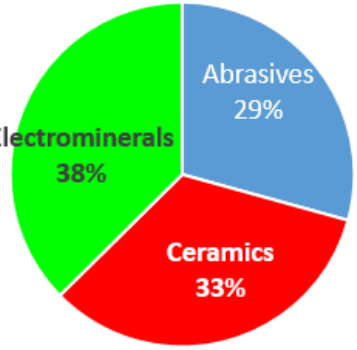
Sales Share



CUMI – FY 15

- Revenue :Rs. 20.2 bn
- EBIT :Rs. 1.9 bn
- Capital Employed :Rs. 14.9 bn

PBIT Share



Abrasives

- Revenue : Rs 8.6 bn
- EBIT : Rs 0.6 bn
- Capital Employed : Rs 5.5 bn

Ceramics

- Revenue : Rs 4.8 bn
- EBIT : Rs 0.7 bn
- Capital Employed : Rs 4.0 bn

Electro-minerals

- Revenue : Rs 7.3bn
- EBIT : Rs 0.8bn
- Capital Employed : Rs 4.3 bn

Industrial Ceramics

Super Refractories

Abrasion

Wear Resistance
Electro Resistivity

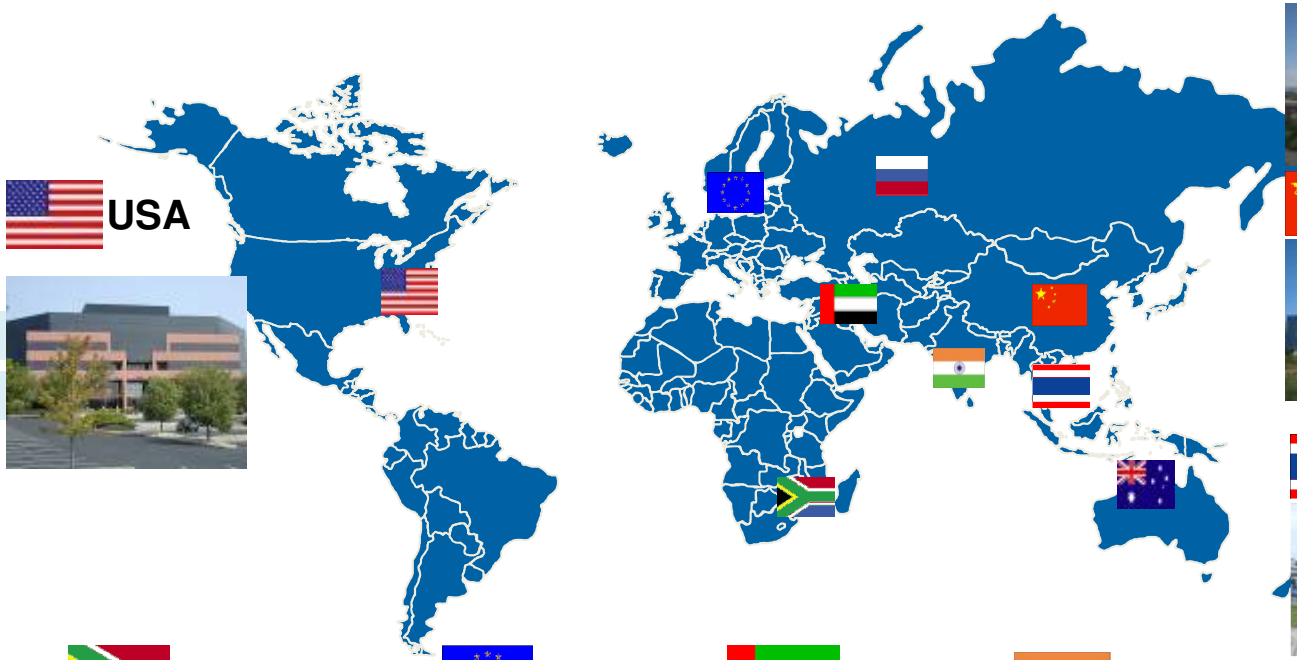
Heat and Corrosion Resistance

Electro Minerals

CUMI Consolidated

- Exports its products to 50 countries
- Over 20,000 varieties of Products
- 29 manufacturing locations
- 7 countries
- Over 5000+employees – 2100+ outside India
- Consolidated Gross Sales Rs 2131 cr (FY 14-15)
- Market Cap~ Rs. 3500 cr

CUMI World Wide- By Business Verticals



RUSSIA

Abrasives

Ceramics

Electro minerals

CHINA

Abrasives

USA

Abrasives

Ceramics

THAILAND

Abrasives

S. AFRICA

Foskor Zirconia

Electro Minerals

EUROPE

Abrasives

Electro minerals

UAE

Abrasives

INDIA

Abrasives

Ceramics

Electro minerals

AUSTRALIA

Ceramics

Abrasives I Ceramics I Electro Minerals

Manufacturing Base Marketing & Distribution Base

OUR VISION/MISSION

VISION

We will be an Admired Company in Abrasives & Technical Ceramics, driven by Innovation, to create Stakeholder Wealth.

MISSION

Become one of the largest Abrasives (including Super Abrasives) / Technical Ceramics in the Company in the World by 2020.

ABRASIVES

ABRASIVES – Products & Application

Bonded Products

Ball Grinding & Ball Lapping

Bearing Industry

Camshaft

Crank Shaft

Gear Grinding

Valve Industry

Rice Whitening

and other applications ….

Thin Wheels

For Rough Grinding and Cutting applications:-

General Engineering
Fabrication
Foundry
Rolling Mills
Projects

and other applications ….

Coated Products

Auto OEM

Auto & Auto Ancl.

General Engineering

Flooring

Wood

and other applications ….

ABRASIVES – Products & Application

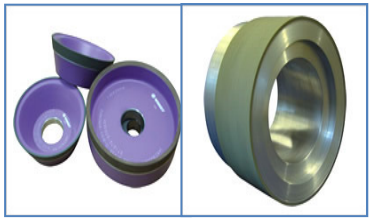
Power Tools

Wood working

Metal working

Construction

and other applications ….



Super Abrasives Products

Rotary Tools
Cutting Tool industries
Printing and Paper Roll grinding
Ceramic and Tile grinding
Wood Working Tools

Creep Feed grinding
Notch and Slot grinding
Tungsten Carbide Roll grinding
Ceramic and Refractory grinding
Glass Industry

and other applications ….

ABRASIVES – Facilities

Manufacturing

India

Thiruvottriyur, Chennai

Hosur, Tamil Nadu

Sriperumbudur, Chennai

Uttarkhand

Overseas

VAW, Russia

CACCL, China

Subs / JV's

Wendt, India

Wendt, Thailand/CME

Sterling Abrasives, Gujarat

Marketing & Distribution

CUMI Middle East

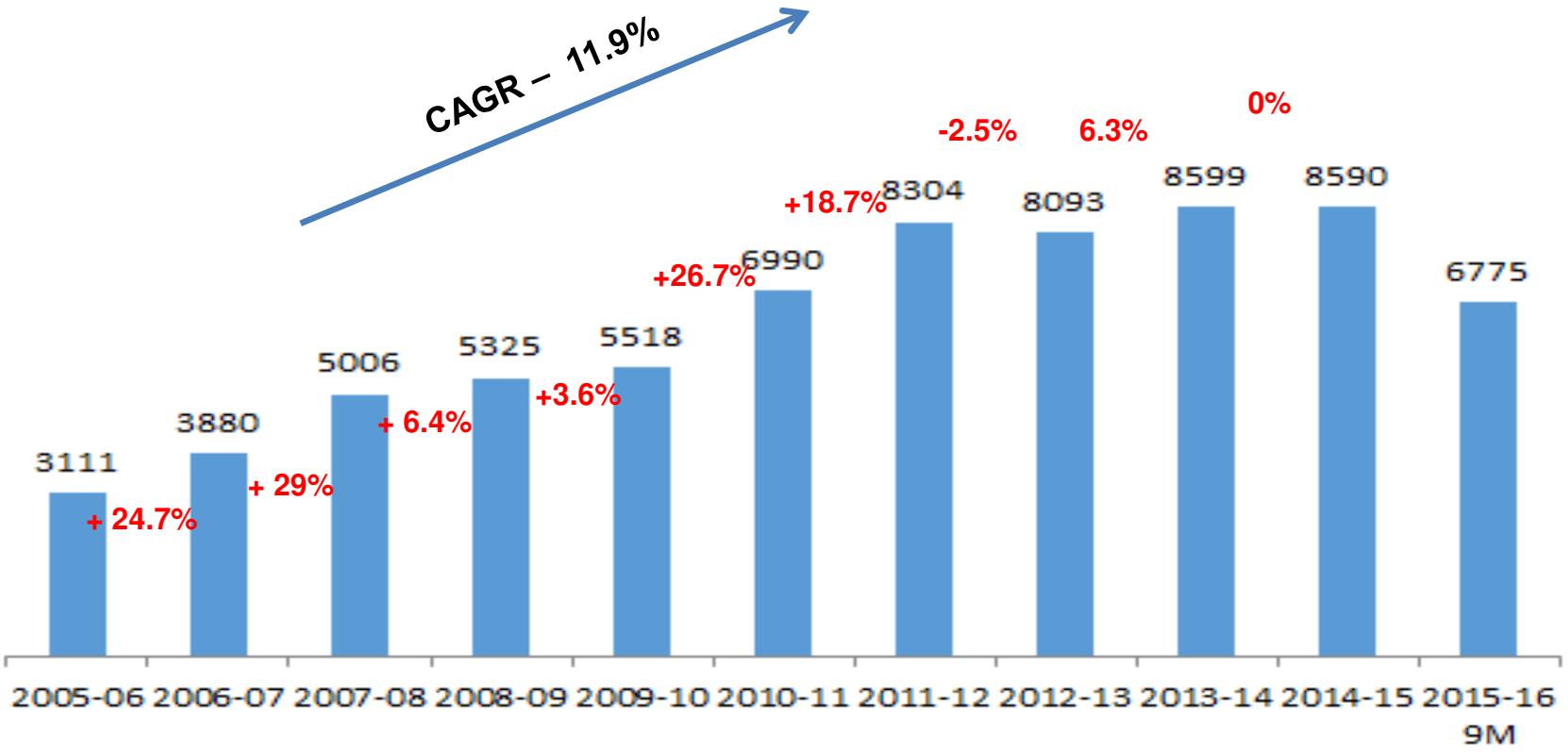
Venlo Netherlands

CUMI USA

ABRASIVES – Performance

Rs. Mil

Consolidated Net Sales - Annual



% sales in India	87%	83%	75%	70%	78%	74%	74%	74%	73%	77%	77%

Opportunities for CUMI Abrasives

Infrastructure

- 100 smart cities across India
  - Freight corridor, Industrial Corridor
    - Sagar mala - connectivity to the Port
      - Gas Grids
      - National Optical fiber network up to the village level
    - Agri Rail Network
- Diamond Quadrilateral project – Bullet train

Steel Industry – Roll Grinding wheels

Fabrication – Thin wheel

Auto Refinishing – Coated

Auto & Auto Components – Crank/ Cam

General Engineering – Off hand/ tool room wheels

Construction Industry- Thin wheels/ super abrasives

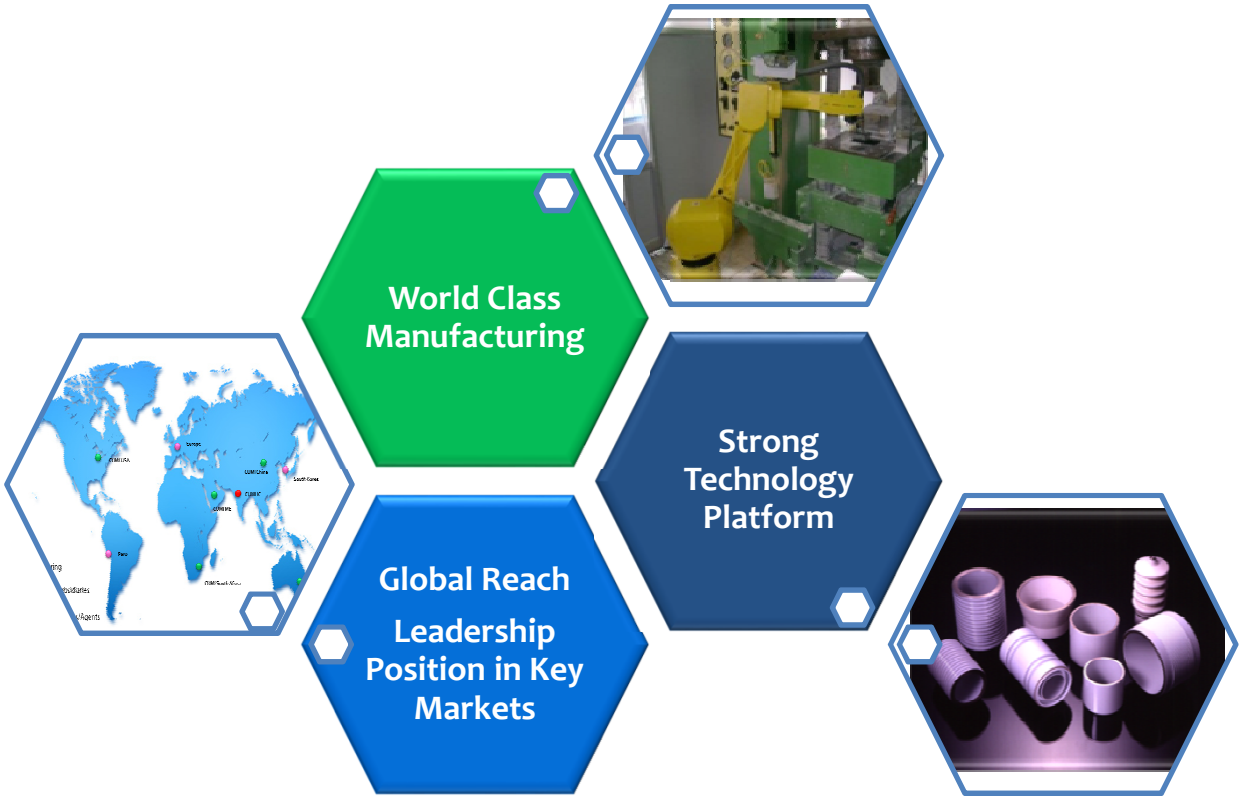
Opportunities for CUMI Abrasives

Energy Scarcity

- Oil-1 mbpd to be added
  - Gas – 135 bcm to be added
    - 1000 TeraWh to be added
    - Thermal / Nuclear will dominate
- Renewable energies will rise

- ❑ Turbine grinding
- ❑ Zircon alloy grinding in the nuclear energy space
- ❑ Fabrication
- ❑ Wind Mill Fabrication

Industrial Ceramics



INDUSTRIAL CERAMICS
Product Range

Wear Ceramics

Grinding Media

Wear Resistant Liners

Ceramic Lined Equipment

Applications

- Bulk Material Handling
- Ceramic Tile/Mineral Processing
- Coal Based Thermal Power
- Mining
- Cement
- Steel

Technical Ceramics

Engineered Ceramics

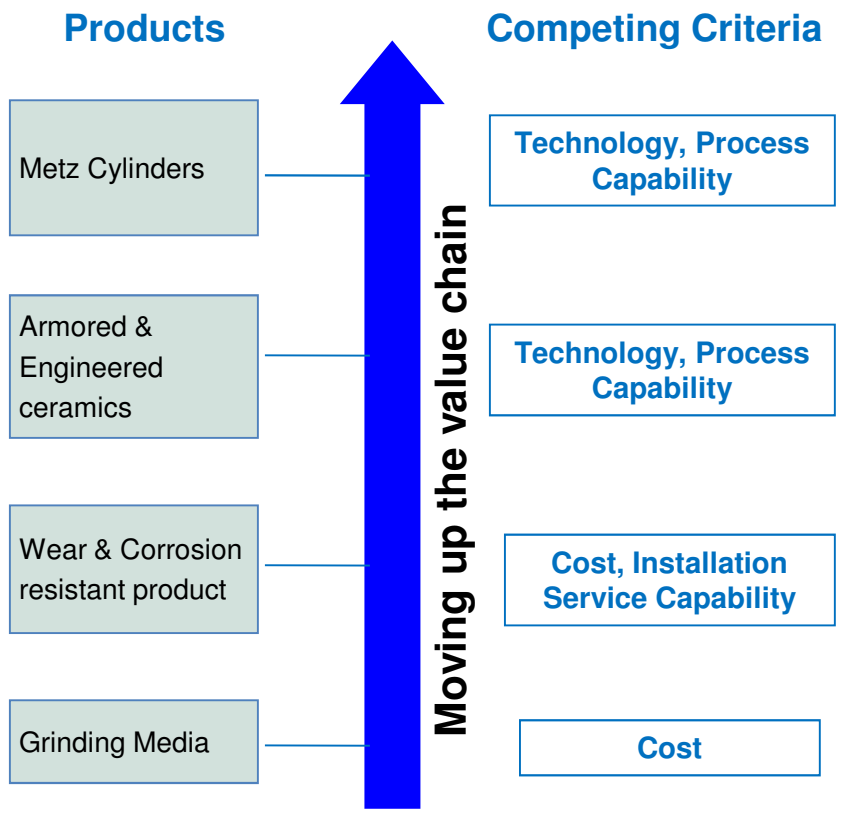
Metallized Ceramics

Applications

- Fluid Handling
- Battery Tooling
- Ignition System
- Ballistic Protection
- Vacuum Interrupters
- X Ray Tubes
- Night Vision Cameras
- Communication Devices

INDUSTRIAL CERAMICS – Move up Value Chain

- Currently we are in the business of Alumina based Ceramics. We constantly look at extending offerings in that range and target newer industries.
- Move up the Value Chain constantly by offering high value products. We have been actively pursuing the same as depicted in the picture alongside.
- Build customer facing entities as we have in Australia to provide end to end solutions in other geographies – South Africa / North America.
- Grow in Ceramic medical business



Our Strengths…

- ✓ A Global Leader in Wear Protection Solutions
- ✓ State of art Ceramic Material Preparation
- ✓ Automation, Process Control & TPM
- ✓ Application Engineering & Design
- ✓ Customized Engineered & Metallized Ceramics
- ✓ ISO, EMS & OSHAS Certified

Impact of Megatrends

Infrastructure

Urbanisation

Mining

Power Generation

Power Transmission

- Wear Protection
- Metallized Cylinders

Impact of Megatrends

Global Rebalancing

Manufacturing

- Wear Protection
- Metallized Cylinders
- Engineered Ceramics

Emergence of Affluent

Healthcare

Mullite Refractories

CUMILITE

USER INDUSTRIES	APPLICATION
• Carbon black • Cement • Ceramics, Petrochemicals, Fertilisers, Steel. • Ceramics, Metallurgical industries • Electro ceramics, Advanced ceramics • Glass	Reactor lining Rotary kiln lining Burner blocks Heating element carrying plates Kiln lining & Kiln furniture Regenerator Target wall / Division wall Port Neck Arches Rider Arch & Spanner tiles Forehearth super structure

High Alumina Refractories

CUMILOX

USER INDUSTRIES	APPLICATION
• Fertiliser • Fertiliser • Foundry • Alloy Steels • Steel • Electro Ceramics	Secondary reformer and gas generator lining Catalyst bed support Channel induction furnace lining Secondary refining vessels lining Ladle nozzles, Well blocks and sleeves Reheating furnace hearth Skid Rails

Zircon & Zirconia-Mullite Refractories

CUMIZON & CUMIZITE

USER INDUSTRIES	APPLICATION
• Glass	CUMIZON for Melter Bottom Blocks, Filler Blocks below silica crown skew Blocks CUMIZITE for Forehearth sub structure Borosilicate furnaces: Forehearth superstructure Spout burner blocks Regenerator Top checkers Regenerator Crown.

SUPER REFRACTORIES

Silicon Carbide Refractories

CUMIFRAC

USER INDUSTRIES	APPLICATION
• H.T. Insulators / Ceramics • Sanitaryware, Tiles • Ferro-alloys • Foundries, Forge plants, Powder metallurgy • Cement	Kiln furniture Muffles and chamber-fronts Taphole linings Heat treatment furnace hearth Rotary kiln discharge end

Nitride Bonded Silicon Carbide Refractories

CUMIREX & CUMISTAR

USER INDUSTRIES	APPLICATION
• Ceramics • Aluminium • Copper • Iron & Steel	Kiln furnitures, Burner tube Aluminium reduction cell lining, Tap-out blocks Shift Furnace lining, Launder, Thermocouple sheath Blast furnace lining.

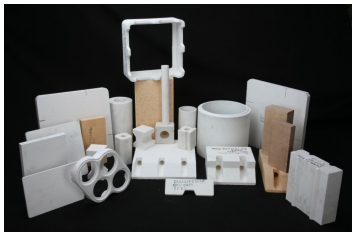
Insulation Refractories

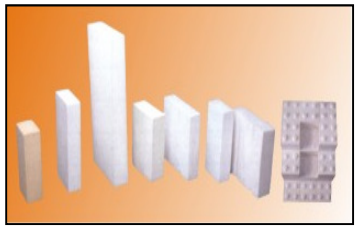
CUMILAG

USER INDUSTRIES	APPLICATION
• Ceramic, Metallurgical, Carbon black and sponge iron industries • Ceramic, Metallurgical industries • Fertiliser • Steel • Fertiliser and Power generation • Electroceramic Industry	High temperature kiln hot face / backup lining Laboratory kiln hot face lining Primary reformer and hydrogen transfer lines Blast furnace stoves High temperature air pre-heaters and secondary reformer cold face Pusher type furnace lining

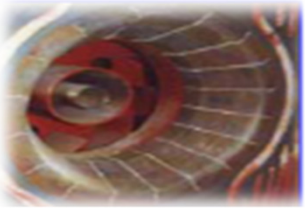
SUPER REFRACTORIES– Product Range

CUMI Refractory Products





- **Fired products**
  - Silicon Carbide (CUMIFRAC)
  - Nitride bonded Silicon Carbide
  - Mulite (CUMILITE)
  - High Alumina (CUMILOX)
  - Zirconia Mullite and Zircon (CUMIZITE & CUMIZON)
  - Insulation Firebricks (CUMILAG)
- **Monolithics**
  - Conventional Dense Castables (CUMICRETE)
  - Insulation Castables (CUMICRETE Light Weight)
  - Low cement castables (CUMIHICAST & CUMIPLASCAST)
  - Self Flow Castables (CUMIFLOW &CUMICAST EF)
  - Ramming Mass (CUMIRAM)
  - Laying Mortars (CUMI Bond)
- **Precast Shapes**

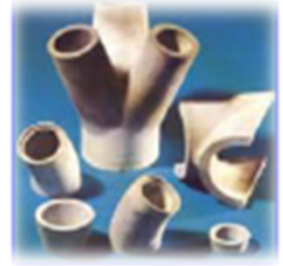


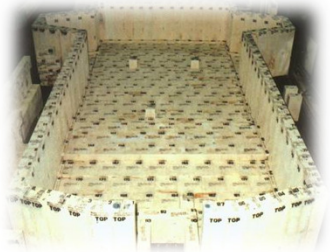
SUPER REFRACTORIES

- Refractory is any material that can withstand high temperature. CUMI is into High Alumina, Silicon Carbide, Zirconia based refractories which are capable to withstand very high temperature:-

  - **Fired Refractories:** Is a block of refractory ceramic material used in lining furnaces, kilns & fireplaces. A refractory brick is built primarily to withstand high temperature.

  - **Monolithics**: These are refractory material in powder form. These are materials which are installed as some form of suspension that ultimately harden to form a solid mass.





- The division also manufactures and sells Anti-corrosive products: Corrosion is a degradation of materials' properties caused by chemical reaction with their environments. Anti-corrosive products are used in plants/ products which undergo such corrosion.

SUPER REFRACTORIES - Application

Ceramic Industries

Insulators
Sanitaryware & Tableware
Abrasives
Wall Tiles
Refractories
Electro Ceramics

Glass

Container
Soda-lime
Boro-silicate
Decorative
Fibreglass

Chemical Process Industries

Carbon Black
Fertilizer
Petro-Chem. / Refinery

Cement

Power Generation

Boiler

Non – Ferrous

Aluminum
Copper
Zinc

Iron & Steel

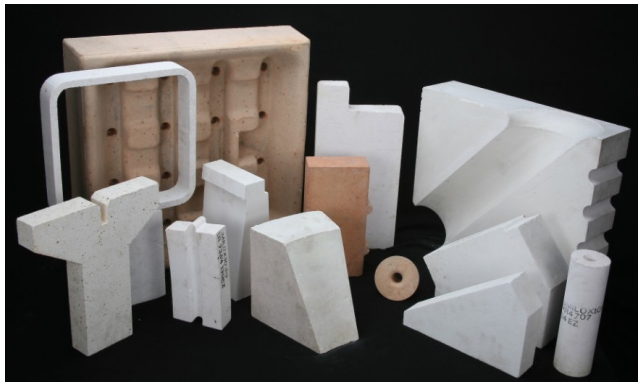
Sponge Iron (DRI)

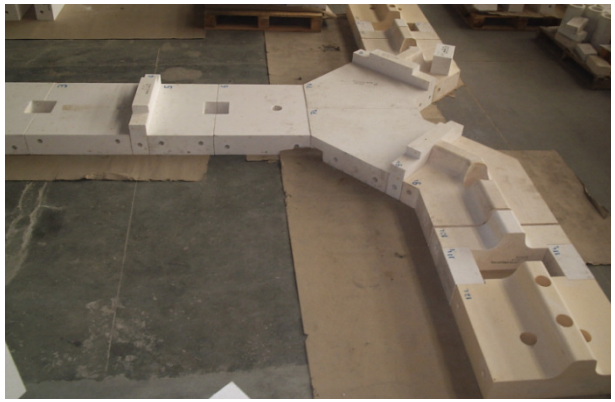
Gas-Based
Coal - Based

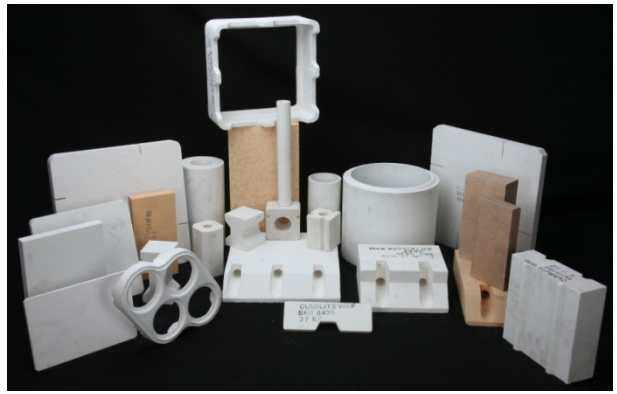
Foundries

SUPER REFRACTORIES

Ability to manufacture complex shapes and meet all surge requirements







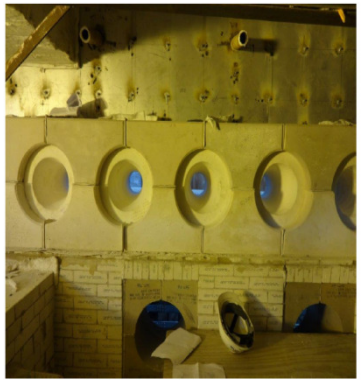
Opportunities for CUMI CERAMICS (IC+SR)

Coal Washeries

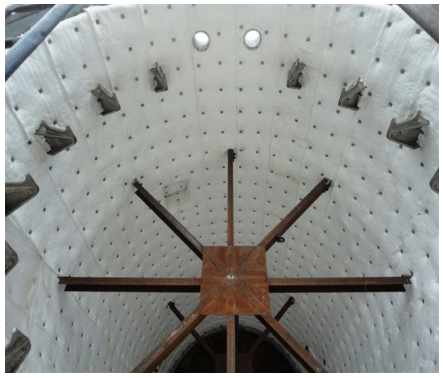
Ceramics for Steel

Reheat/ Heat Treatment

Forging Furnaces



Annealing



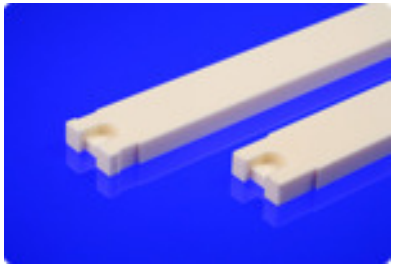
Process Gas Heaters

Glass Melting Furnace

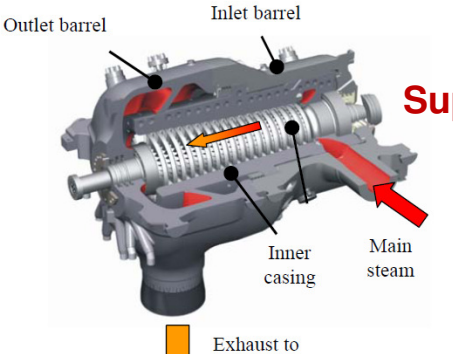
Gunning

Opportunities for CUMI Ceramics (IC+SR)

HRSG

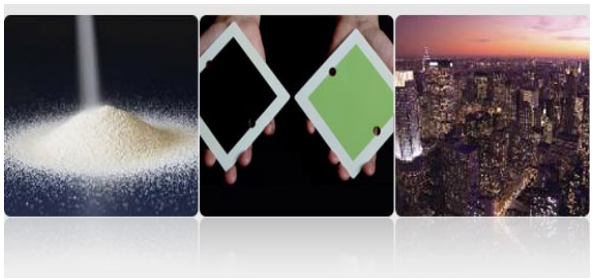


High Alumina Ceramics for Renewable Energy



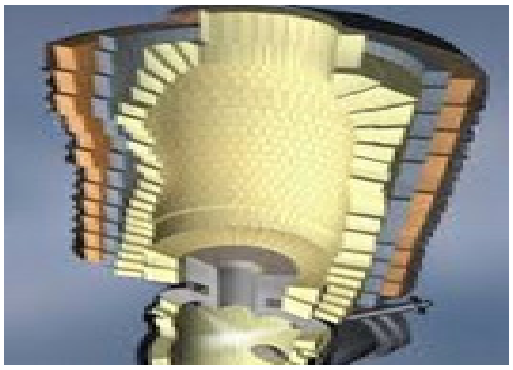
Super Critical Turbines

Passive Fire Protection



Ceramics for SOFC

Gasification Projects



FGD Systems

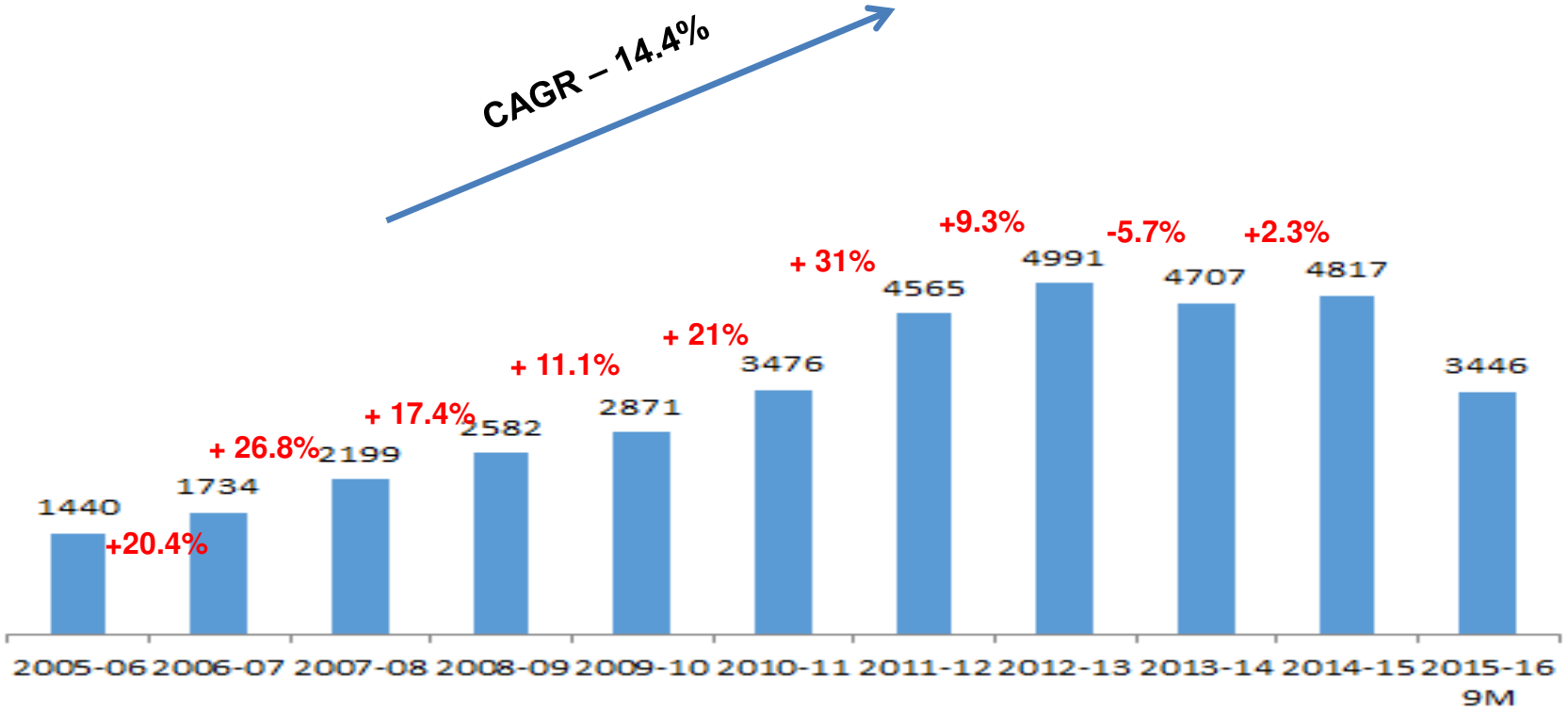
Circulating Fluidised Bed Combustion Boiler

CFBC Boilers

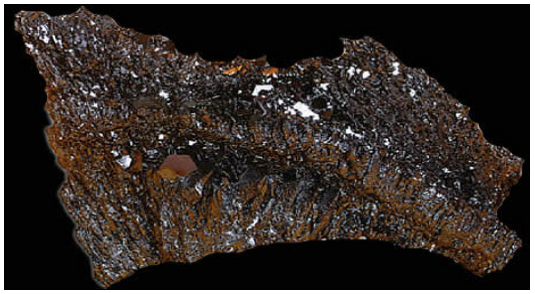
CERAMICS (Industrial Ceramics and Refractories)- Performance

Net Sales - Annual

Rs. Mil



% sales in India	44%	43%	53%	54%	53%	56%	62%	55%	55%	60%	60%



ELECTRO MINERALS

ELECTROMINERALS – Product Range

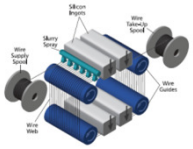
Brown Fused Alumina | White Fused Alumina | Silicon carbide | Zirconia | Specialty minerals

Bonded Abrasives

Coated Abrasives

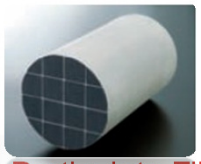
Refractory

Metallurgical

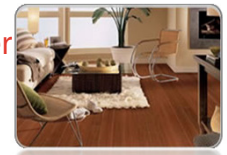


Silicon wafer slicing

Investment casting



Particulate Filter



Floor Laminates

Surface Engineering | **Refractories** | **Energy & Environment**

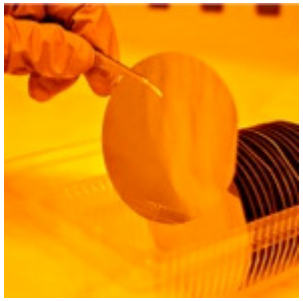
ELECTROMINERALS - Application

Refractory

Bonded Abrasives

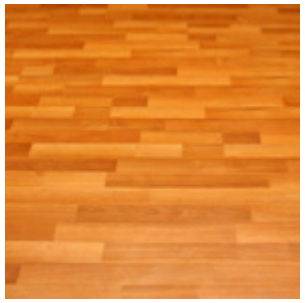
Coated Abrasives

Dermabrasion



Semi Conductor

Lapping

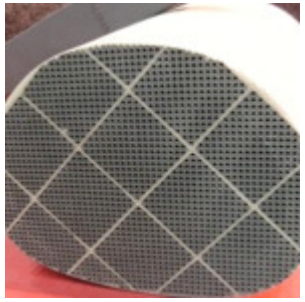


Laminates

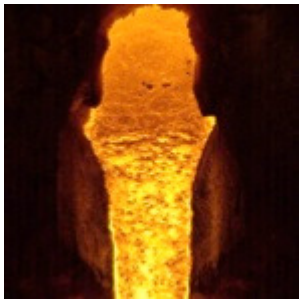
Pressure Blasting

Photovoltaic

Plasma Spray

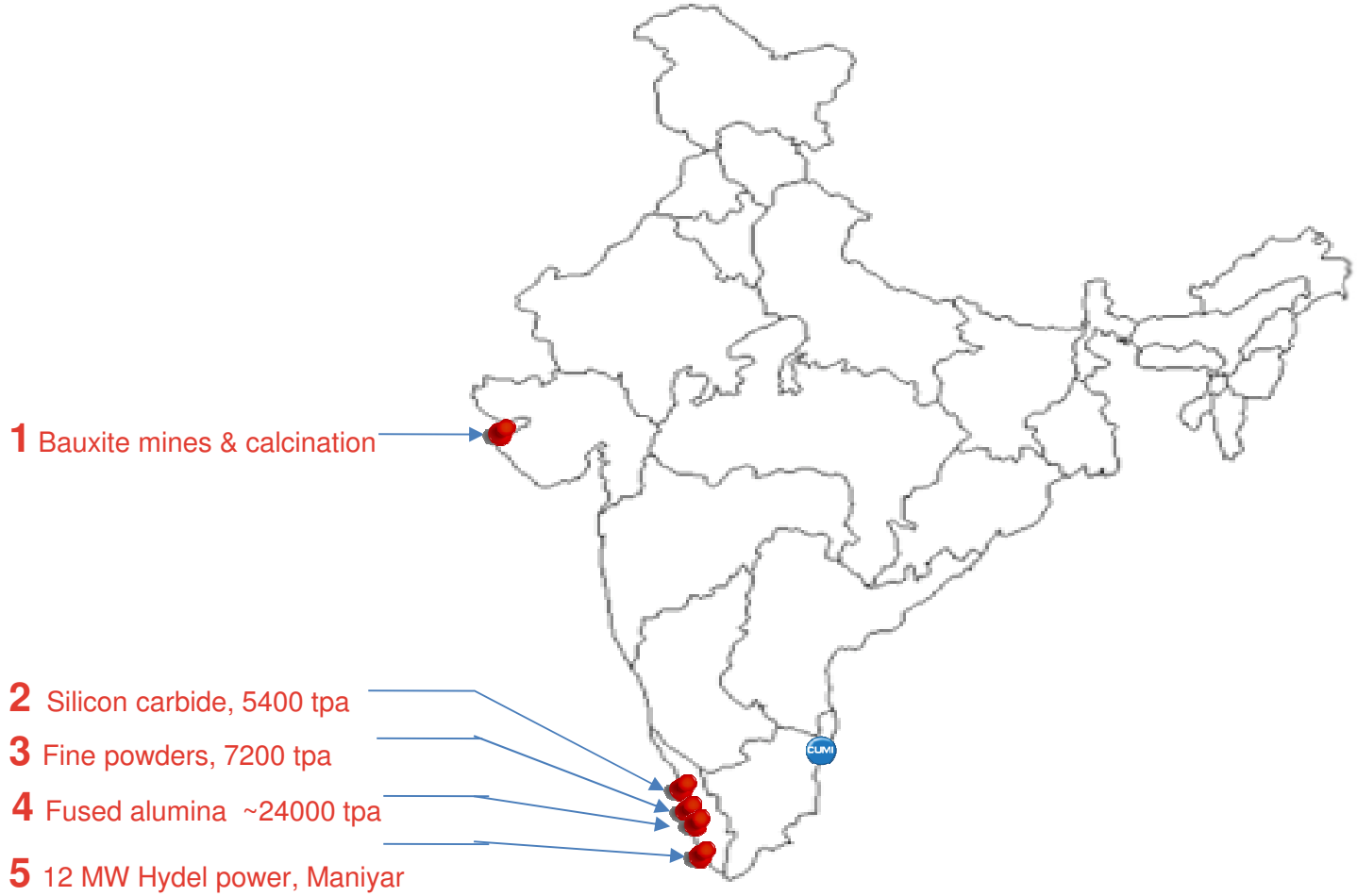


Particulate Filters

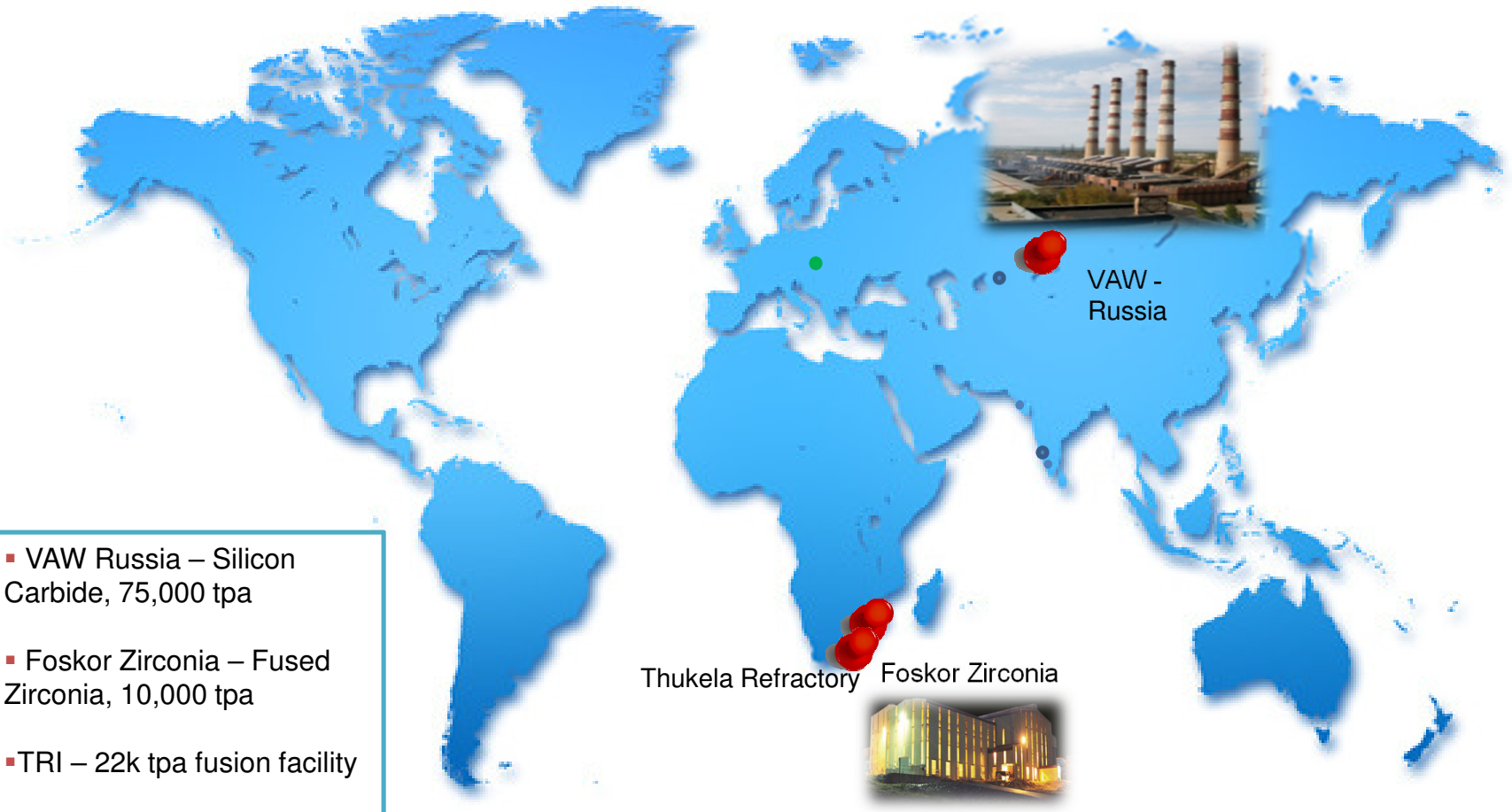


Metalurgical

ELECTROMINERALS – Facility



ELECTROMINERALS – Overseas Facility



- VAW Russia – Silicon Carbide, 75,000 tpa
- Foskor Zirconia – Fused Zirconia, 10,000 tpa
- TRI – 22k tpa fusion facility

Fused and Synthetic Alumina at Kochi

SiC Koratty India

SiC VAW, Russia

ELECTRO MINERALS – Global Capacity & Our Standing

Global Capacity and Our Share

- Silicon Carbide
  - Global capacity is ~ 2 million tonnes. Price and Cost movements, macro factors, keeps these facilities either running or closed.
  - With 75k tons per annum in VAW we are the second largest after Saint Gobain
  - Around 50% of the capacity is in China, with no single identifiable big player
  - Around 40% capacity is in China

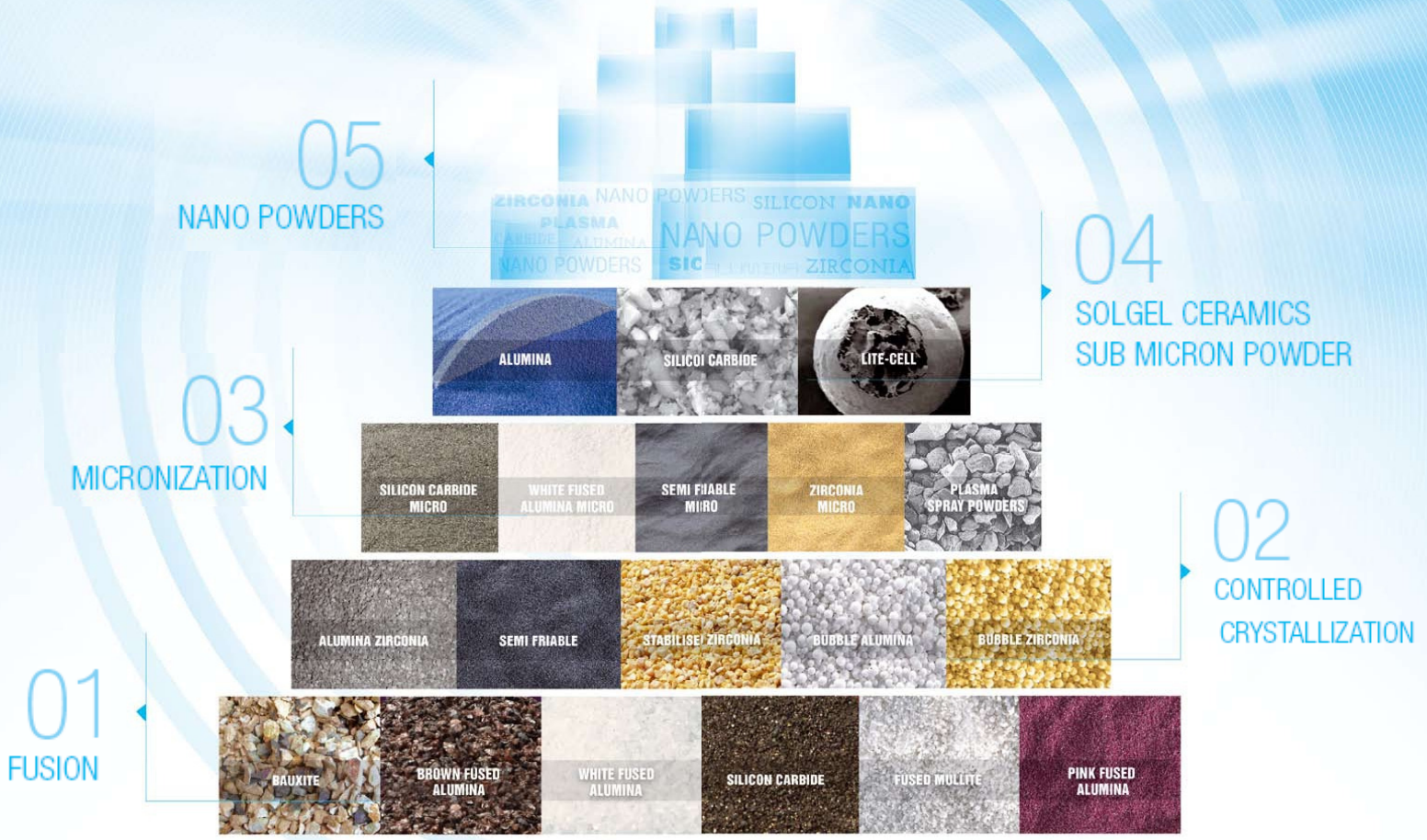
- Fused Aluminas
  - Global capacity is ~ 1.7 million tonnes
  - CUMI share is 1%
  - Around 50% of the capacity is in China

Current Standing Point

- Established leadership in Russian and Indian market
- Locational advantage in Russia by way of low power and pet coke cost providing significant cost competitiveness in SiC business
- In Speciality products, CUMI has achieved leadership in this business by way of improving process capability and Micronisation

ELECTRO MINERALS – Future Strategy

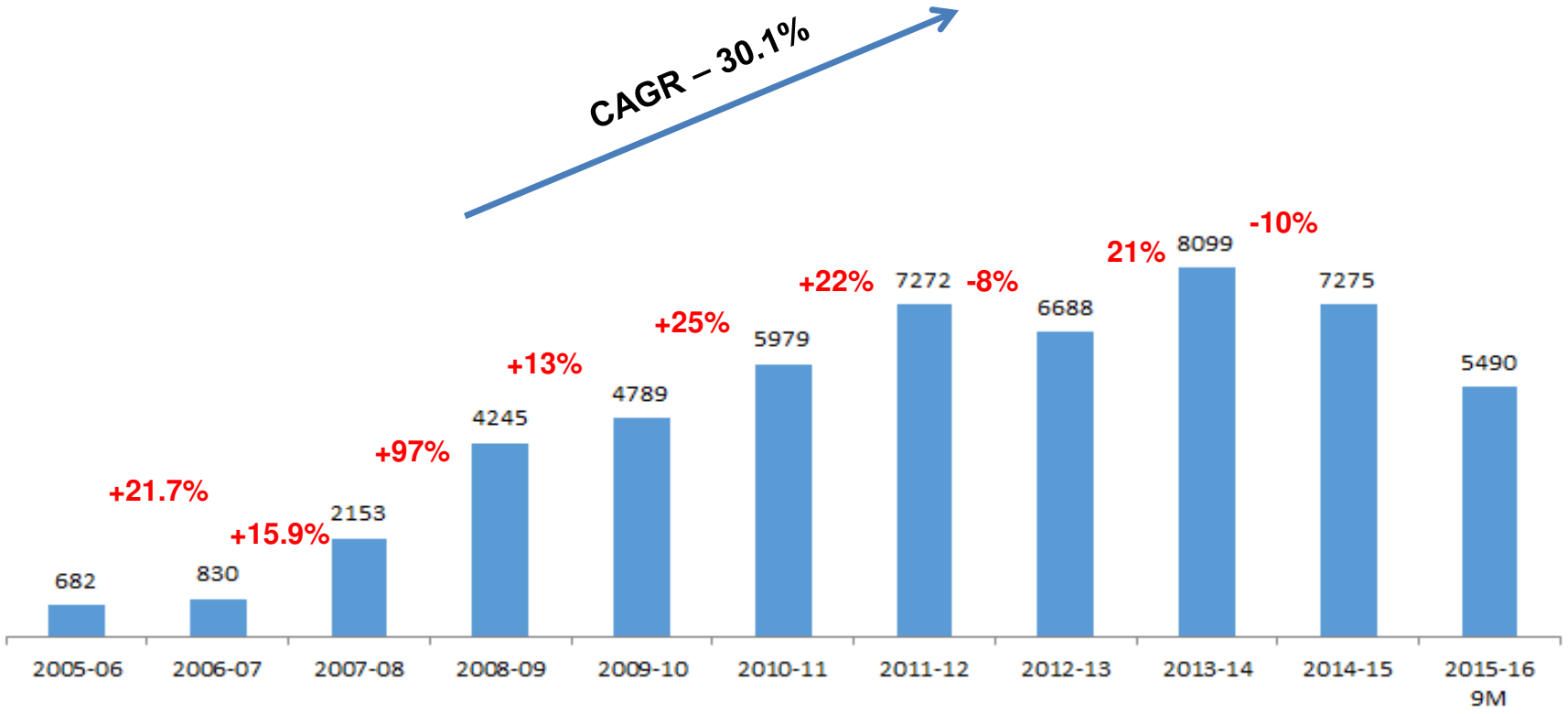
Innovation Value Pyramid



ELECTRO MINERALS - Performance

Net Sales - Annual

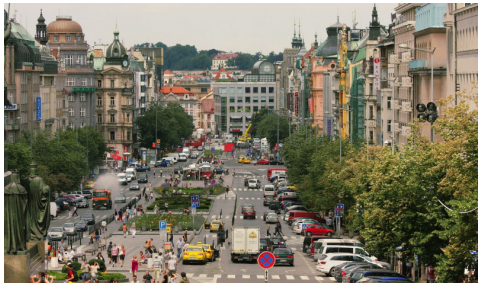
Rs. Mil



% sales in India	94%	88%	40%	20%	24%	22%	21%	22%	25%	26%	26%

ELECTRO MINERALS – Current developments

- Shifting of Bubble plant in FZL to Cochin
- Transfer of furnace in TRI to Cochin
- Scale up Alumina Zirconia – add C&G plant
- Set up wholly owned subsidiary in Czech Republic, Europe
  - To sell VAW products in Europe overcoming the Russia Ukraine tension and to improve the profitable product mix in VAW Russia by identifying potential market
  - To strengthen CUMI base in Europe for all lines of products including Ceramics, Refractories, electro minerals etc



EMD Business Opportunity

Environment

- Euro 6
- Demand for water

- SiC for DPF
- SiC and Alumina for Filtration

Energy

- Nuclear Energy
- Mobile energy
- Renewable energy

- Zirconia
- SiC
- Graphite
- Thermal Powders

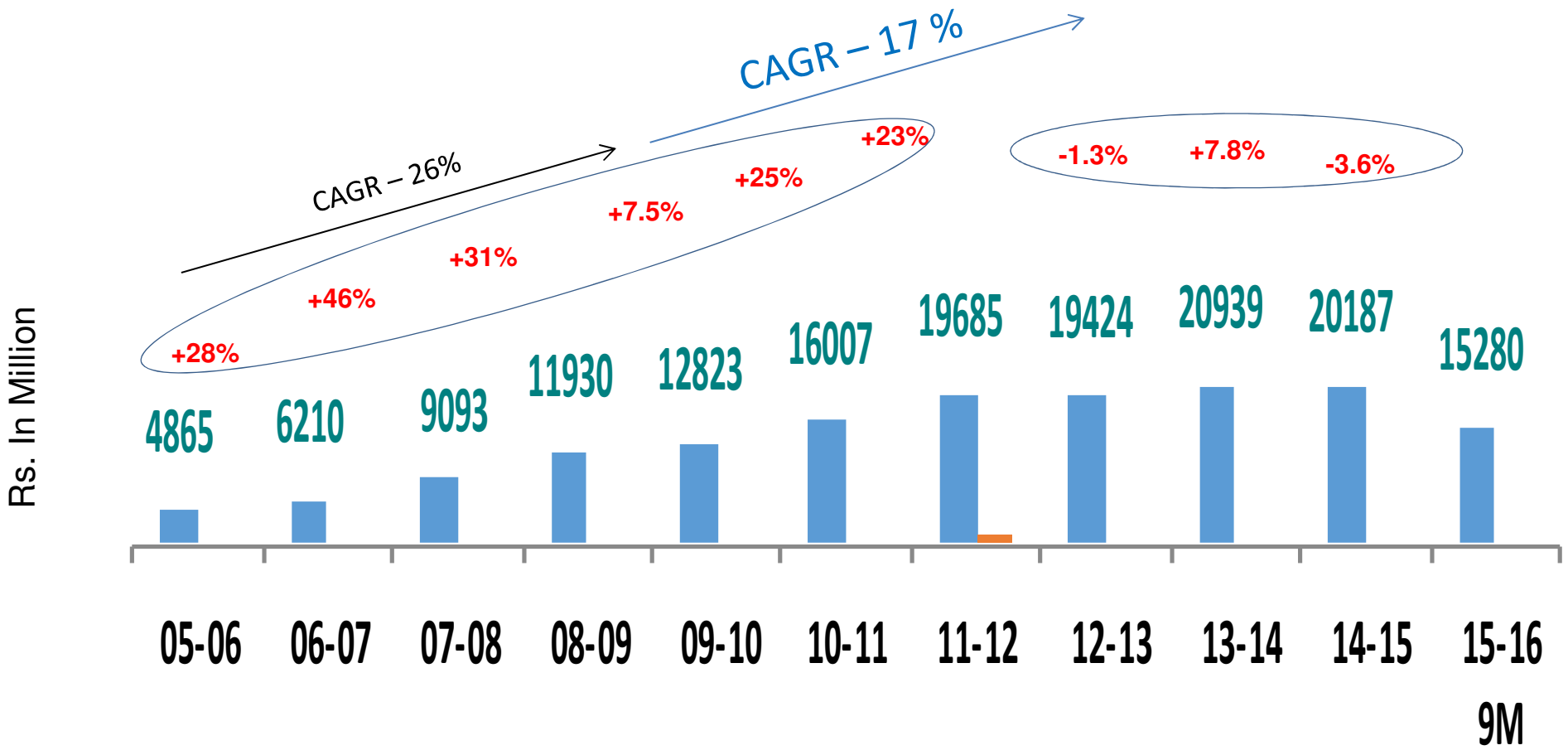
Urbanization

- Infrastructure
- Transportation
- Housing

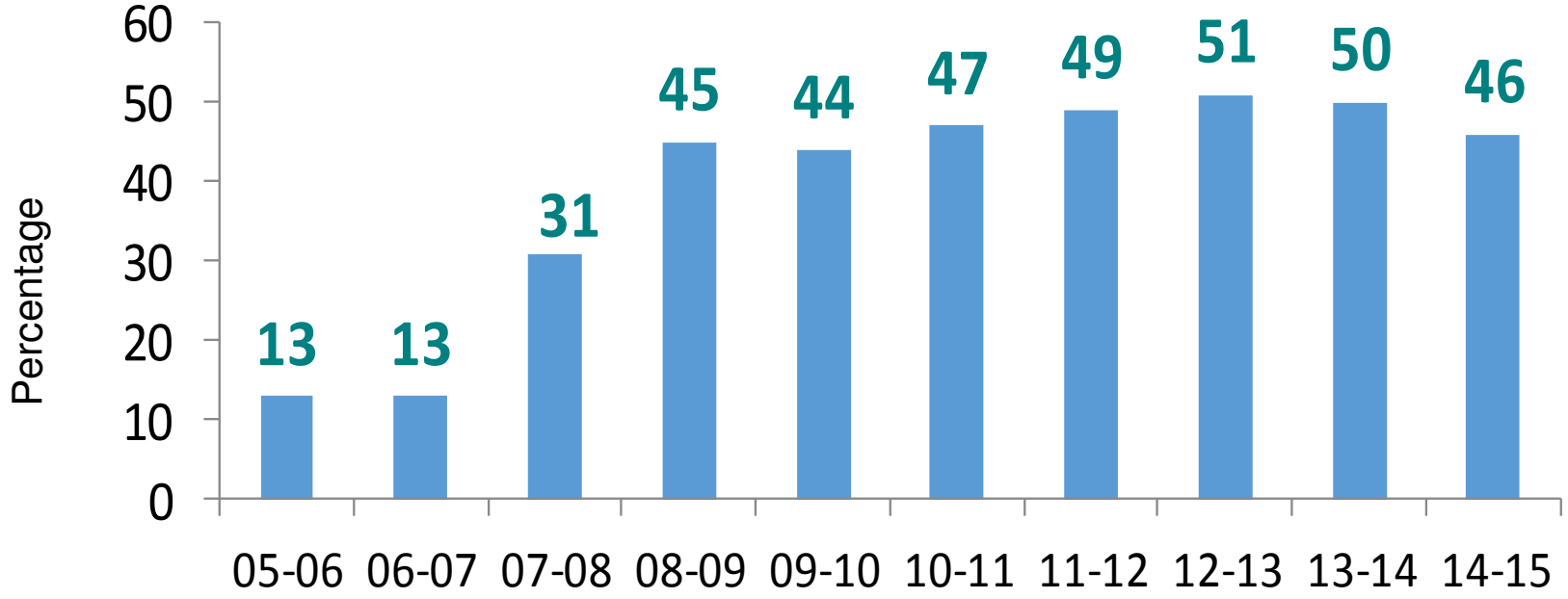
- Abrasives
- Refractories
- Thermal Powders

FINANCIALS

Revenue Growth



International Revenue share (%)

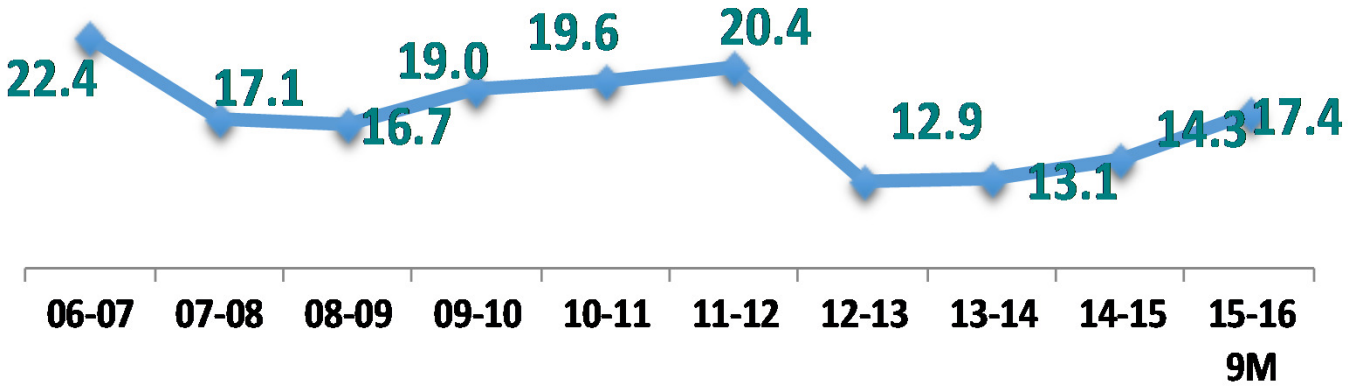


Segmental Performance

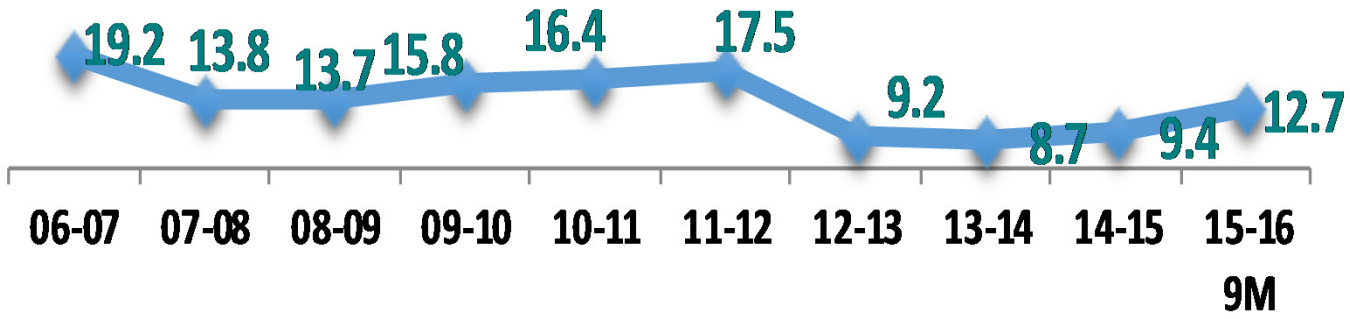
Net Sales (Rs. Mil)	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16 9M
Abrasives	3214	3880	5006	5325	5518	6990	8304	8093	8599	8590	6775
Ceramics	1130	1734	2199	2582	2871	3476	4565	4991	4707	4817	3446
Electro minerals	681	830	2153	4245	4789	5979	7272	6688	8099	7275	5490
Inter segment	-311	-351	-382	-370	-596	-704	-773	-737	-830	-927	-796
Others	151	116	116	148	241	266	316	389	364	432	366
Net sales	4865	6210	9093	11930	12823	16007	19685	19424	20939	20187	15280
PBIT Margin (%)	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16 H1**
Abrasives	16.3	16.0	13.4	9.8	9.4	13.7	15.0	10.3	7.0	7.2	9.5
Ceramics	19.7	22.5	20.0	20.3	19.4	17.6	19.7	15.8	12.5	14.7	13.8
Electro minerals	21.8	18.4	12.1	17.9	21.5	18.4	19.2	3.5	10.0	10.9	18.2
Total	18.9	19.2	14.5	13.7	15.8	16.4	17.5	9.2	8.7	9.4	12.7

Performance Ratios

EBITDA %

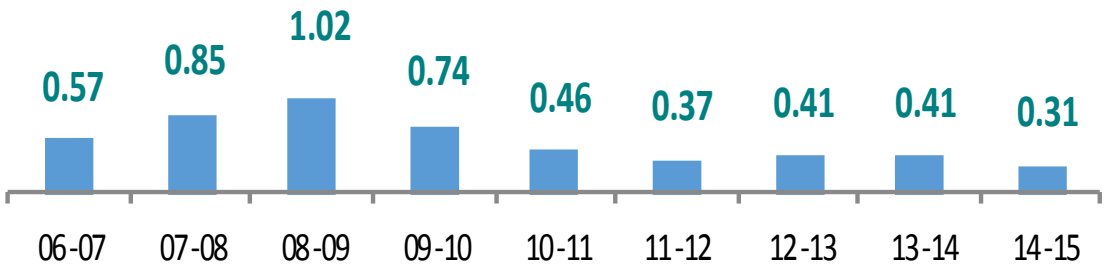


PBIT %

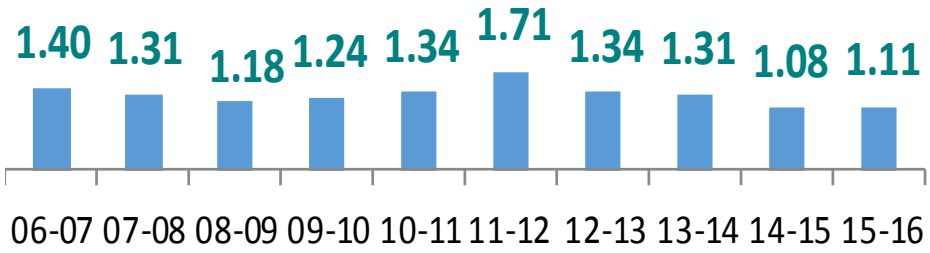


Performance Ratios

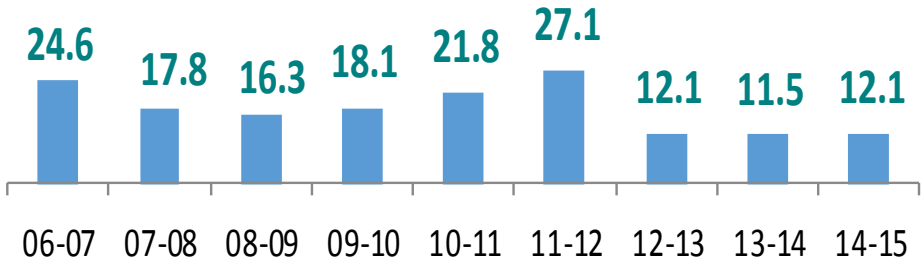
Debt Equity Ratio



Asset Turns

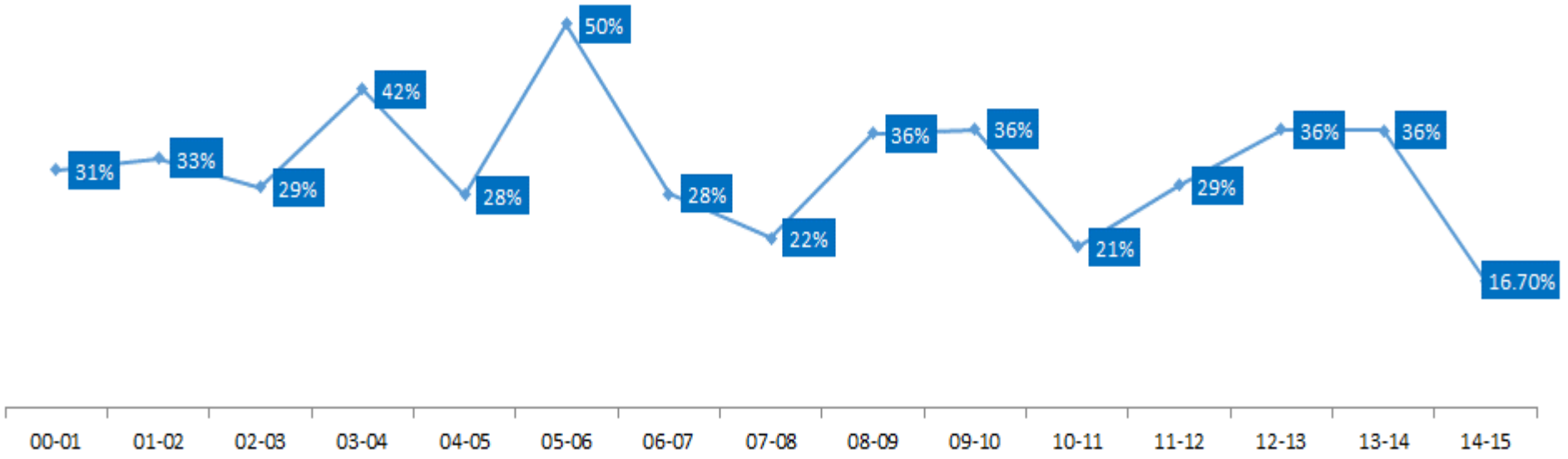


ROCE



Market Performance Ratios

Dividend Payout Ratios



Investor Friendly Company

- 43.66% held by the Murugappa Group, 35.98% held by FII's, MF, PE, Insurance Cos
- 61 years of unbroken track record of Profit and Dividend
- Six Bonus Issues since inception – 89% of the current Equity is by way of capitalization of Reserves
- Growth over the years entirely funded by Debt, Internal accruals and by unlocking value
- Investor / Analyst Interaction
  - Quarterly Earnings Call and Transcripts upload
  - Minimum 2 investors Presentation in Mumbai and Abroad
  - Bi Annual Communication on company performance sent to all investors
  - 100 plus investor visits / tele conference in a year

CUMI Center for Skill Development (CCSD)

CUMI Center for Skill Development (CCSD)

CCSD inducted a new batch for the new academic year.
Students along with their parents attended the inaugural ceremony.