

Ushering in the Carbon Age





Annual General Meeting 2019





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.

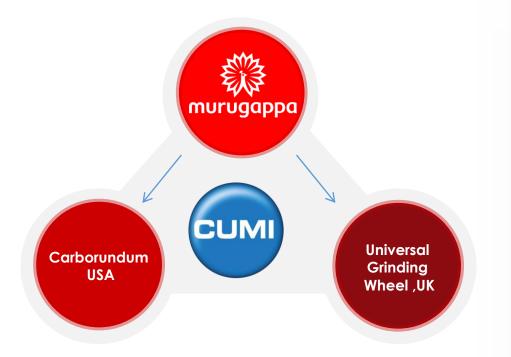


Carborundum Universal Limited





CUMI's Inception



Business activity - manufacture of Coated Abrasives, Bonded Abrasive, Super- Refractories, Electro-Minerals, Industrial Ceramics, and Ceramic Fibers

Exports its products globally

Over 20000 varieties of Products



Incorporated as a joint venture in 1954 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

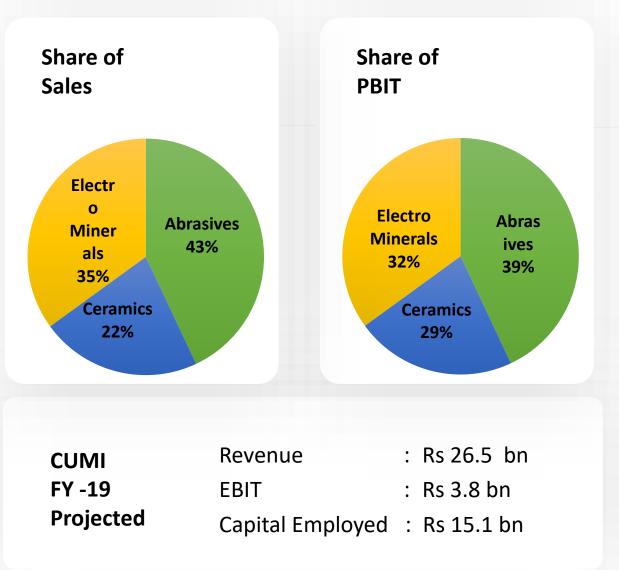
28 manufacturing locations across India, South Africa, Russia, Australia & China

All the manufacturing facilities of Carborundum Universal are ISO 9001:2000 and ISO 14001 Certified

Incorporated on April 21, 1954



CUMI Business Portfolio – FY19



Abrasives

Revenue	: Rs 11.4 bn
EBIT	: Rs 1.5 bn
Capital Employed	: Rs 5.4 bn

Ceramics

Revenue	:Rs 5.9 bn
EBIT	: Rs 1.1 bn
Capital Employed	: Rs 4.0 bn

Electro Minerals

Revenue	: Rs 9.2 bn
EBIT	: Rs 1.2 bn
Capital Employed	: Rs 5.7 bn



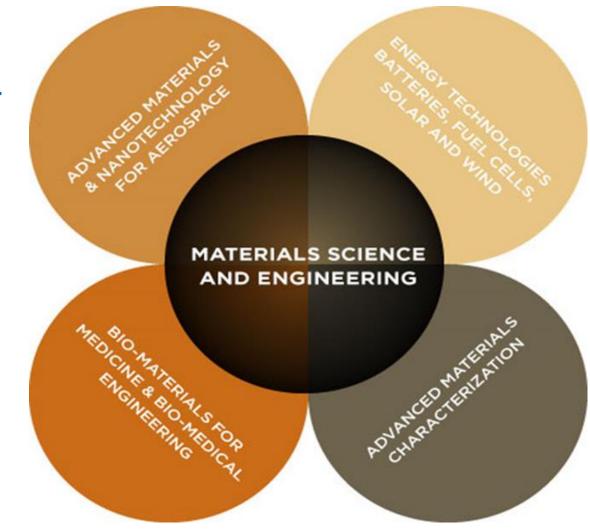
CUMI is essentially a Material Science Company

Exploit Abrasive, Wear, Heat Containment, Insulation, Corrosion Resistance, and other properties of materials.

Major emerging opportunities:

Aerospace – like SiC / SiC fibre Bio Materials. Al related materials Energy storage materials – Graphite, Graphene, Li Industry 4.0 – sensors, IOT

CUMI Business = Industrial Consumables + Industrial Durables + New Materials





Where Do We Sell?



India, South Africa, Russia







Abrasives

Engineering Precision Surfaces



Abrasives – Engineering Surfaces





Automotive



Construction



Bearing



Woodworking



Transmission



Steel



Aerospace

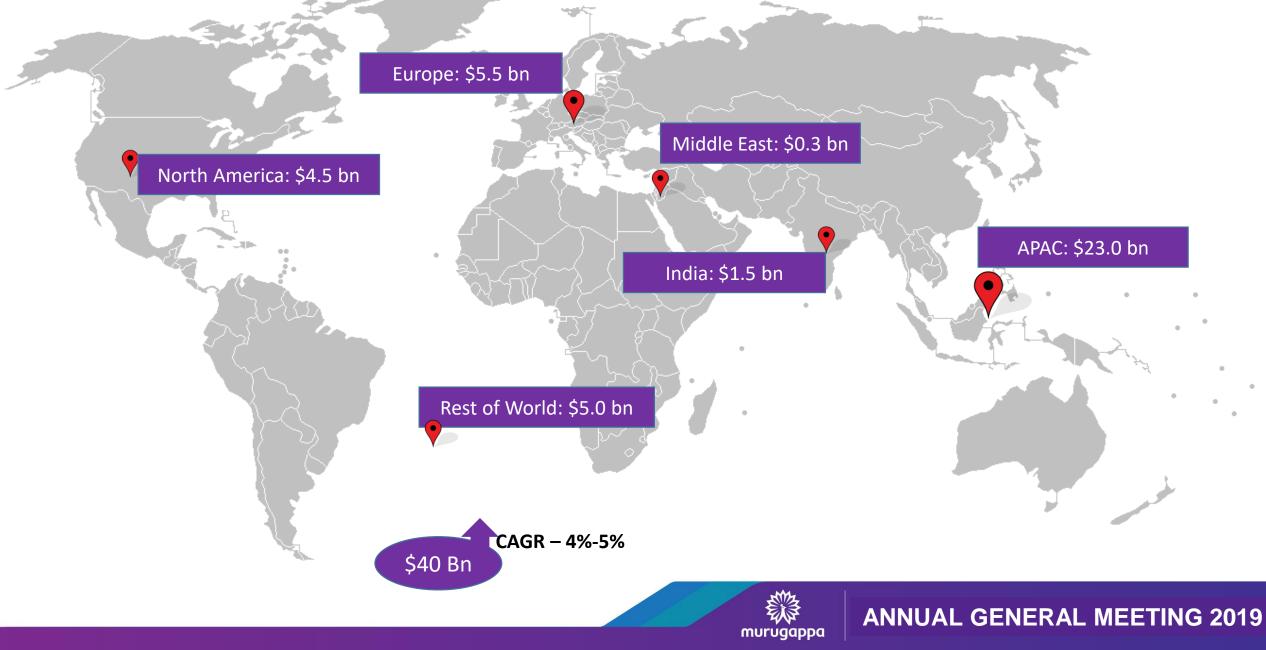


Fabrication





Global Business – Local Nature



Abrasives – Drivers For Growth



Automobile Infrastructure Growing Investments. 9% CAGR. Smart Cities EV – No short term disruption Airports Railways & Transportation led growth Engineering Robust Growth led by domestic Steel consumption & NSP Led Growth exports 300 Mil Tonnes by 2030

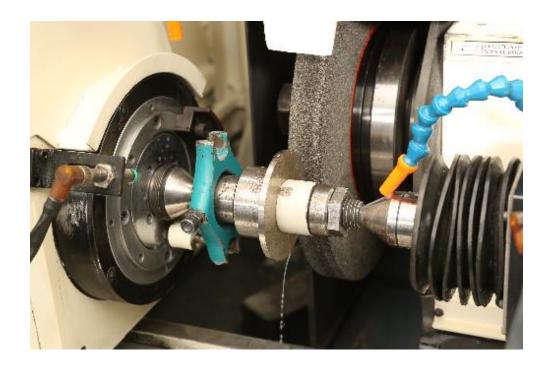
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Customer Expectations



Mass Market Customers

- Product Availability
- Manual to Machine
- Value For Money Performance
- Complete Product Basket
- Safety



Precision Abrasives Customers

- Productivity & Machine OEE
- Precise Surface Finish
- Cost Per Component
- Application Support
- One Stop Tool Management Solutions



CUMI Abrasives – Way Forward

Among the top 10 Abrasives Brand in the world 20% from International Business

Strong Domestic Play, Select Global Markets Digitalization of Processes, Data Analytics Process Excellence Systems

Leverage Channel Strength in India – Core & Adjacencies Inorganic Growth in US/Europe/China Repositioning Precision Abrasives - CUMI/Wendt Combined Offering Cost Leadership & Agile Innovation Efficient Manufacturing, Strong Distribution Strategic Sourcing, Building Partnerships

Strategic Levers For Growth



Coated Abrasives - Growth Thru Capacity Addition & NPD

Precision Abrasives - Growth Through In-House Development & Strategic Partnerships

Bonded Mass Market Products - Growth Through Capacity Utilization & Strategic Sourcing

Channel Expansion & Supply Chain Transformation – Building unmatched distribution in India

Adjacencies – Growth Leveraging Channel Management Strengths

International Business – Growth by

- Precision Products at Select Geographies
- Coated Jumbos for Convertors
- Inorganic Partnerships



International Business



Precision Abrasives in US, Europe & China Mass Market Products in Middle East & Russia Brand Visibility Built over 15 Years

Platform set for Growth through leveraging current brand recognition and reach along with Strategic Partnerships







Electro Mineral Division



CUMI – Electro Minerals Division







Brown Fused Alumina	White Fused Alumina	Silicon carbide	Zirconia	Specialty minerals



Bonded Abrasives



Coated Abrasives







Metallurgical



Battery Materials

Investment casting



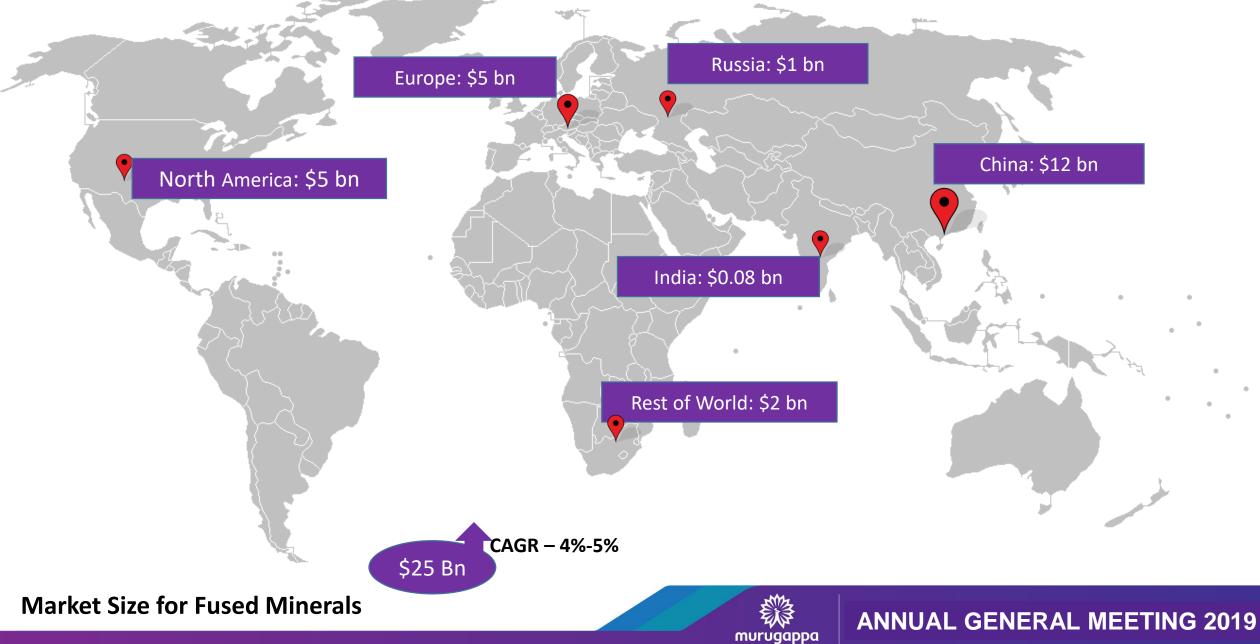


Floor Laminates

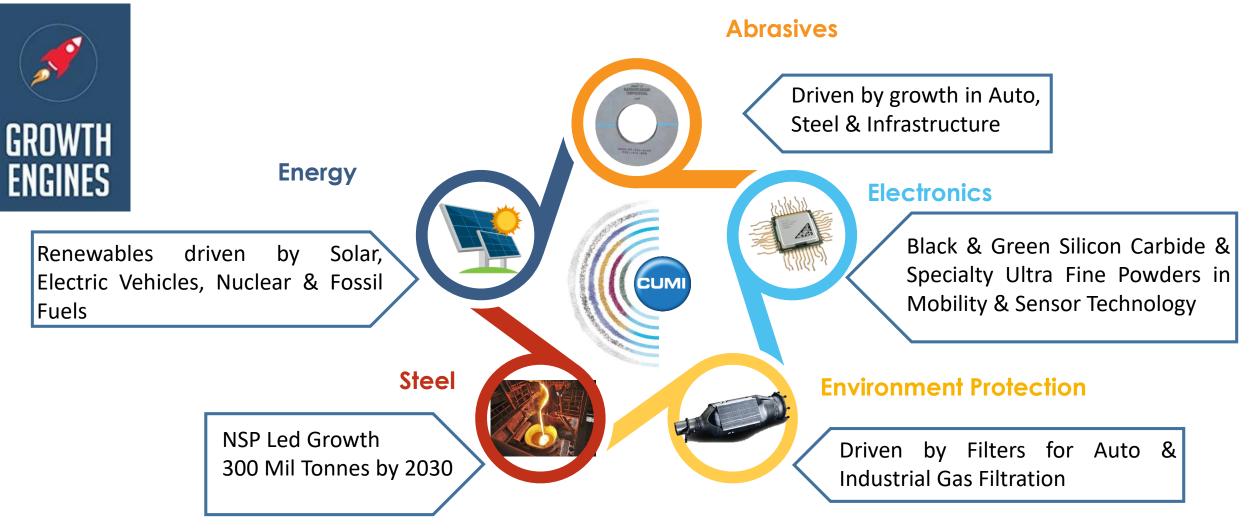
Engineering | Energy | Environment



Global Business – Resource Dependent



EMD – Drivers For Growth





Customer Expectations





Regular Minerals

- Consistent Quality
- Competitive & Predictable Price Trends
- Range of Products

Speciality Minerals

- Application Support
- Stringent Pre-Qualification
- Ability to Customize
- Material Science Knowledge



CUMI Electro Minerals – Way Forward

To be a Globally Recognized Manufacturer of Complete Range of Synthetic Minerals Global Markets addressing Energy, Engineering & Environment

Build Economies of Scale in commodities to achieve Cost Competitiveness Leverage low cost feedstock and technology to create value add products Identify and build growth platforms in adjacent verticals Create value cells in new lines of high growth businesses Target Inorganic Opportunities for Scale

Efficient Mineral Processing & Bulk Sourcing Capabilities

Contracting of capacities (regulars) & Business

Development for specialities

Proactive Innovation & Application skills for specialities

Digitalization of Processes, Data Analytics Process Excellence Systems



CUMI EMD – Strategy For Growth





Volzhsky Abrasive Works, Russia



VAW – Growth Projects

NbSiC for Aluminium smelter pots.



Fused Magnesia & Magnesia Carbon Bricks opportunity



Lowest cost Silicon Carbide producer: ~ 90K tons to 100K tons

Rail car fusion at VAW



Venturing into Nano Materials



Inauguration of 'Boehmins & Nano Materials' Plant at CUMI SEZ, Edapally, Kerala



Capacity Expansion - Bohemin





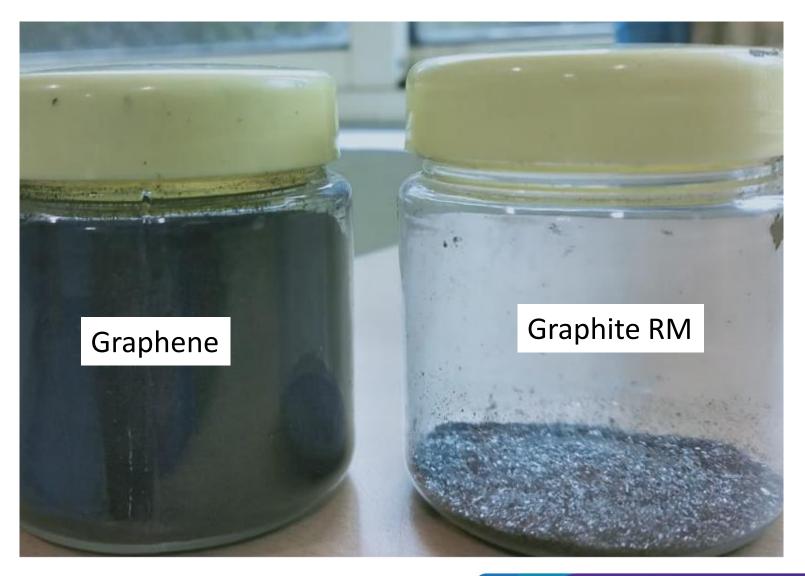
CUMI

GRAFINO

The new offering from CUMI.....

40

Same weight !





Process Area Outside View







Application Lab





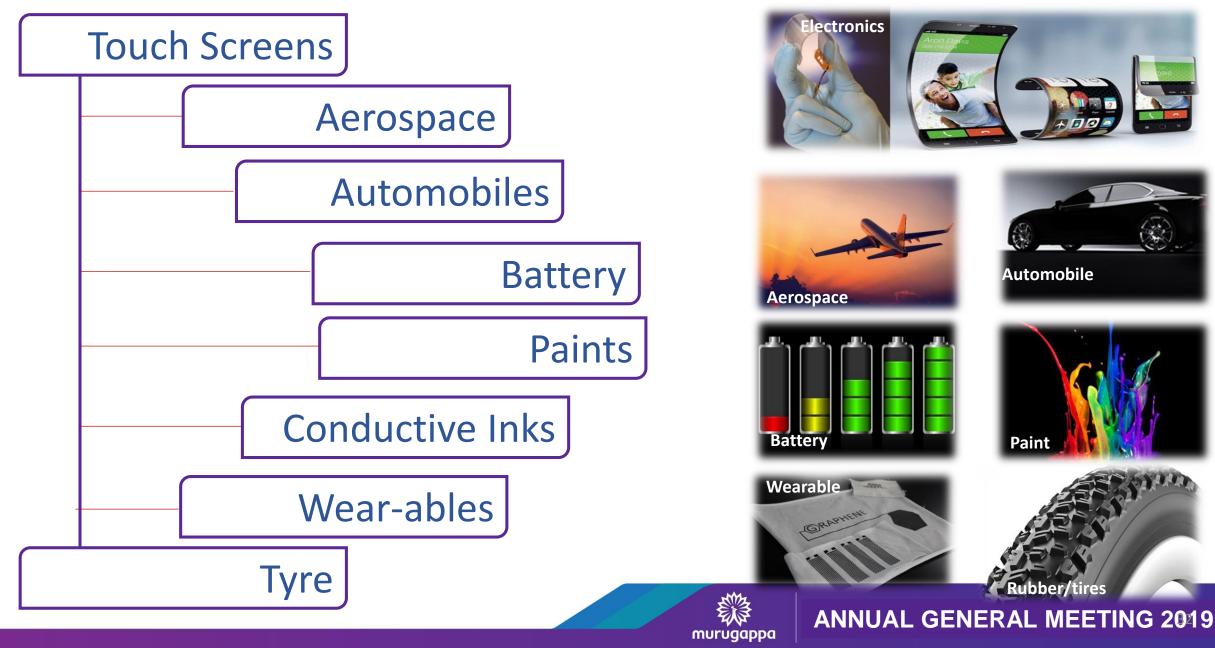


Graphene Opportunities in E-Vehicles

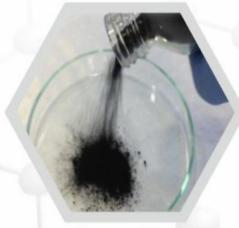




Graphene – Current and Future Applications



Graphene Based Products from CUMI



Graphene Powder



Carbon Nano Tubes



Graphene Composites

Parameters	GRAFINO TG	GRAFINO RG
Thickness (nm)	8-10	2-5
Lateral Dimension(Micron)	10	5
Layers (Nos.)	10-16	2-5
BET Surface Area (m ² /g)	112	330
Bulk density (g/cc)	0.45	0.08
Purity (%)	>98	>98

Parameters	GRAFINO CNT
Diameter (nm)	OD:20
	ID:16
Length (Micron)	20
Purity (%)	>98
BET Surface Area (m ² /g)	220
Bulk density (g/cc)	0.1

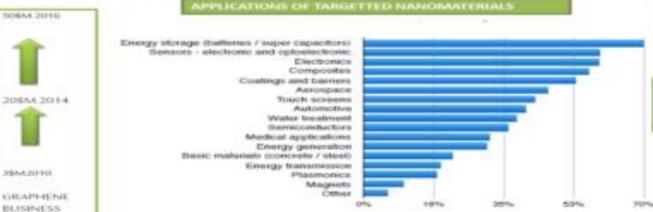
Types
Polypropylene
PA6/PA66
LLDPE
Ероху



New Opportunities

We Produce & supply bulk Graphene From Special Graphite using Chemical Exfoliation method using proprietary equipment treating a temp -5 degree C to 2700 degree Current Capacity 10Kg/Day & Scalable to 1000Kg/Day





ISRO lists 10 firms to make Li-ion cells

It will transfer the technology

TIKI RAJWI THURLYANANTHAPURAM

The Indian Space Research Organisation (ISRO) on Tuesday named 10 companies to which it proposes to transfer the technology for manufacturing Lithium-ion cells developed by the Vikram Sarabhai Space Centre (VSSC), Thumba.

Originally developed for use in launch vehicles and satellites, this ISRO spin-off will now fuel India's electric vehicle boom.

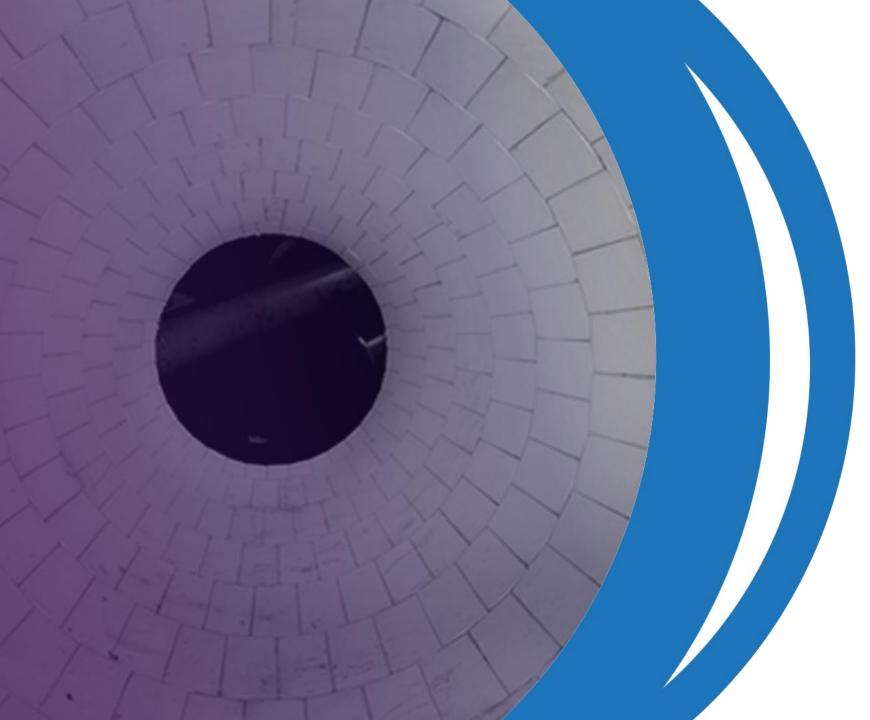
Majority of the companies selected for the commercial production of the Li-ion battery are privateowned, with one from Kerala – Carborundum Universal Ltd based in Kochi.

The shortlisted companies are the following: Amara Raja Batteries Ltd, Chittoor, Andhra Pradesh; Bharat Electronics Ltd, Pune: Carborundum Universal Ltd, Kochi; Exicom Tele Systems Ltd, Gurgaon; GOCL Corporation Ltd, Hyderabad; Jyoti CNC Automation Ltd, Rajkot; National Aluminium Company Ltd (NALCO), Bhubaneswar; Sukhbir Agro Energy Ltd, New Delhi; Tata Chemicals Ltd, Mumbai, and Thermax Ltd, Pune.

The ISRO and VSSC selected the companies jointly with the NITI-Aayog from a long list of 141 firms. According to VSSC officials, the space agency will help the companies set up the Lithium-ion cell manufacturing units and provide training for their staff.

For its own use, the VSSC had developed Li-ion cells with capacities ranging from 1.5 Ah to 100 Ah.

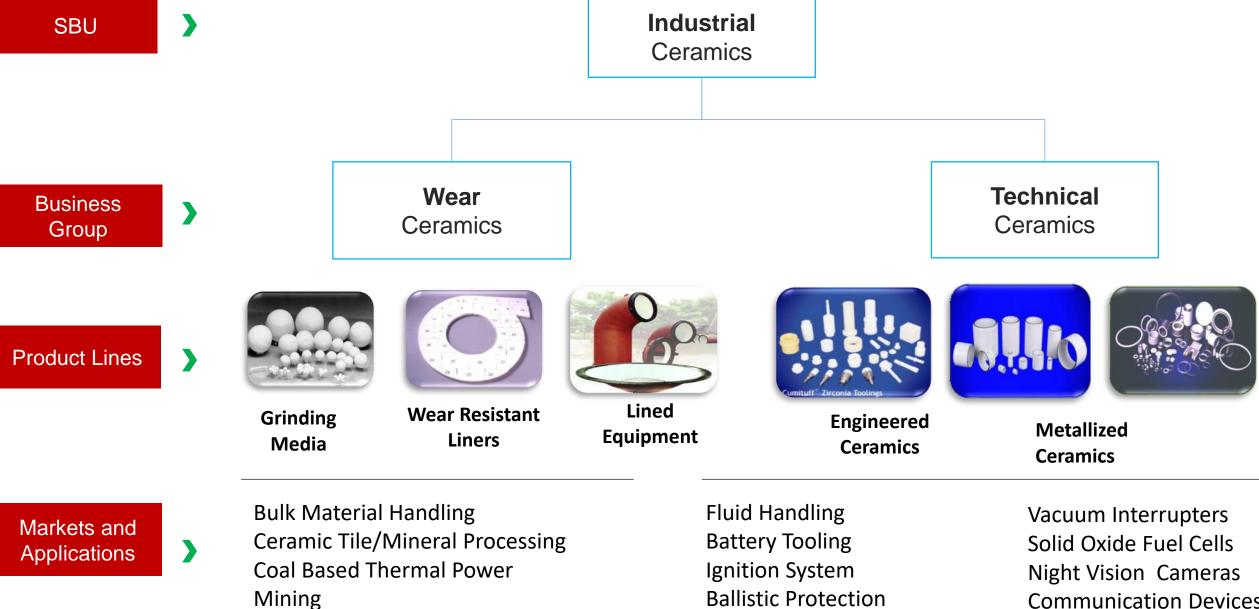






Industrial Ceramics





Mining Cement Steel

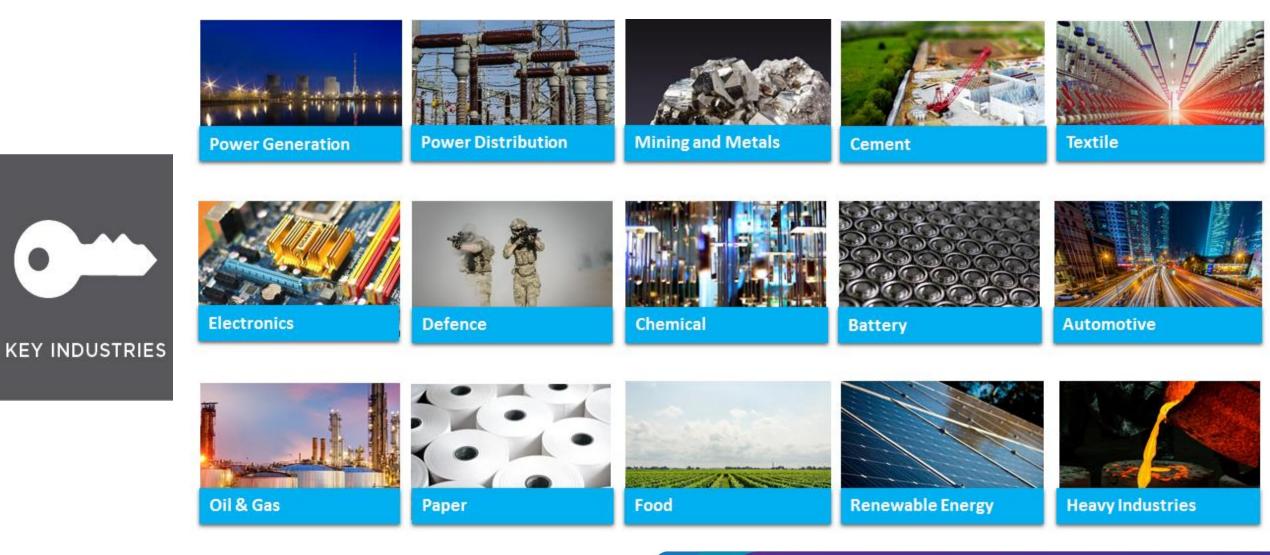
Customized Ceramic products

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Communication Devices

Key Industries Served





Drivers For Growth



Ceramic (Injection Moulding)

Growth driven by automotive, electronics, lifestyle, medical, textile & engineering.

SOFC

Structural & Functional Ceramics for Alternative Energy estimated to be around \$300 million by 2020

Transportation / EV

Ceramic injection molded products and metallized ceramics in Electric Vehicles and others expected to grow significantly in the next 5 years.

Zirconia nozzles for steel

NSP Led Growth 300 Mil Tonnes by 2030 Requirement for zirconia nozzles for flow control .

Vacuum Interrupter

Growth driven by China and India. Power Generation & Transmission



CUM

Customer Expecations



Wear Ceramics

- Consistent Quality
- Application Engineering & Installation
- Global Service Delivery



Technical Ceramics

- Application Support
- Stringent Pre-Qualification
- Ability to Customize
- Material Science Knowledge



CUMI Industrial Ceramics – Way Foward

Top 3 Global Player in Wear Protection One-stop source for all Engineered, Customized Ceramic needs

Global Markets addressing Wear, Energy & Engineering

Digitalization of Processes, Data Analytics Process Excellence System

Project Management Capabilities Co-creating solutions with customers Deep Relationship with Key Accounts Cost Leadership Focussed Differentiation through Technology Tie Ups Engineering & Design and Delivery of Solutions Market Development in Non Oxide Ceramics Strategic Partnerships & Acquisitions



Ceramic Tape Casting & PVD by Sputtering Pilot Plant

Class 1,00,000 Clean Room with Pilot Plant Tape Casting Facility



Class 10,000 & Class 100 Clean Room with Pilot Plant PVD by Sputtering & other related Equipment Facility





Fully Integrated Advanced Ceramics Manufacturing





CUMI Australia

Major supplier of Ceramic lined equipment to Coal washeries, Power stations, Gold / Platinum mines in Australia and Asia Pacific.

- Current sales A\$ 17 mil. Continues to grow at > 10%
- Will grow both geographically and with bigger range of composite linings.
- Business model based on local sales, installation and maintenance support. Manufacture in India.













Super Refractories



CUMI Refractories

Our Technology

 Thermal Ceramics
 : Monolithic Products

 (Hicast, Plascast, Tri-Mor, Carbolite ranges)



: In-house Development of Fired & Monolithic Products

: Fired & Monolithic Products

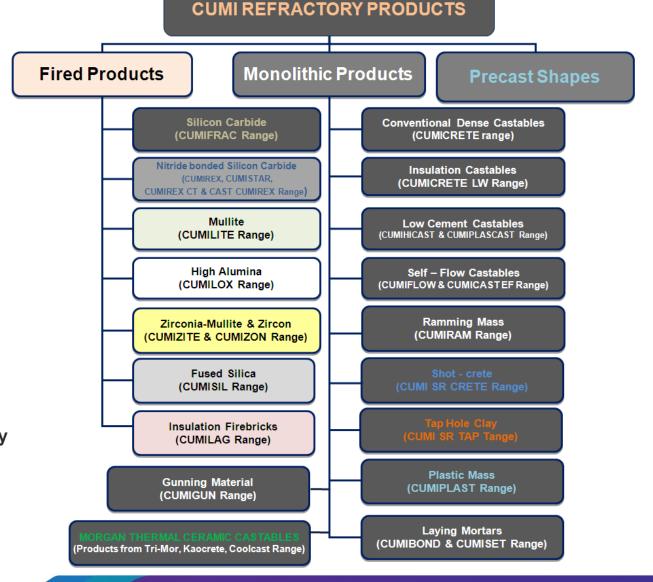


: Monolithic Special Products & Application



: Mullite & High Alumina products for Foundry & Glass Industry Application

High Temperature Protection under load





CUMI Refractories - Applications



Ceramics



Carbon Black







Chemical Process





Sponge Iron

Ceramic Industries

Insulators Sanitaryware & Tableware Abrasives Electro Ceramics

Cement

Power Generation



Non Ferrous



Iron & Steel



Carbon Black Fertilizer Petro-Chem. / Refinery

Glass

Container. Decorative Fibre glass



Foundry



Power Generation

Non – Ferrous Aluminum Copper Zinc

Iron & Steel Sponge Iron (DRI) Gas-Based Coal - Based Foundries

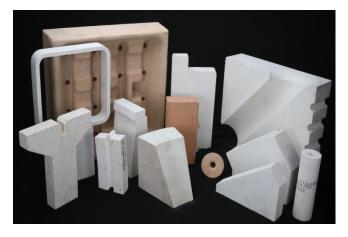


CUMI Refractories - Capabilities





Ability to manufacture complex shapes through pressing, slip casting followed by high temperature sintering, under controlled atmospheric conditions.







Drivers For Growth

GROWTH

ENGINES

Carbon Black





Customer Expectations



Super Refractory Products

- Application Engineering, Design & Installation
- Material Science Knowledge
- Refractory Cost Per Tonne of Steel Production
- Refractory Management Services





CUMI Super Refractories – Way Forward

Achieve 10% share in the Indian/Russia n Market Digitalization of Processes, Data Analytics Process Excellence System Project Management Capabilities Co-creating solutions with customers Deep Relationship with Key Accounts

Cost Leadership

Focussed Differentiation through Technology Tie Ups Engineering & Design and Delivery of Solutions Market Development in NbSiC and Waste Incinerator Projects

Strategic Partnerships & Acquisitions

Specialized niches focussed on shapes and value added products & services



NBSIC Tiles for Waste Incinerator



Developed Superior Oxidation Resistant NBSiC tiles as required for Waste Incineration Boiler



VAW makes ~ 2500 tons of SiC / NbSiC ref. Mainly for the Aluminium industry.

To double this and add the incinerator project. ~ \$ 7 mil a year in sales.









Finance



CUMI – Driving Profitable Growth

- 42.42% held by the Murugappa Group, 29.34% held by FII's, MF, PE, Insurance Cos
- 64 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



F19 – CUMI Standalone

2017-18		2018-19	
Act	Description	Actuals	%
155136	Sales	174997	13%
59785	Contribution	66559	11%
38.5%	Contribution %	38.0%	
25121	EBITDA	30108	20%
16.2%	EBITDA %	17.2%	
7388	Depreciation	7549	2%
2933	Non-optg Income	2319	-21%
147	Interest	88	-40%
20519	PBT	24791	21%
13.2%	PBT %	14.2%	
14348	PAT	16609	16%
9.2%	PAT %	9.5%	

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Rs. In Lakhs

Key Ratios

Parameter	Q1 17	Q2 17	Q3 17	Q4 17	Q1 18	Q2 18	Q3 18	Q4 18	Q1 19	Q2 19	Q3 19	Q4 19
ROCE%	16%	14%	12%	21%	11%	14%	16%	19%	21%	22%	18%	26%
Debt Equity	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(times)	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Debt Service Coverage Ratio	20.1	17.7	20.4	31	198	123	157	143	1286	1116	845	95
PBT % to Sales	11.4%	10.9 %	10.4%	16%	8.9%	12.7%	13.2%	13.2%	14.3%	14.6%	11.6%	16.2%
Sales/G C A (times)	2.6	2.5	2.4	2.6	2.5	2.7	2.5	2.6	3.0	2.6	2.8	2.9
Sales/A N W C (times)	3.9	3.6	3.4	3.9	3.8	4.0	4.1	4.0	4.6	4.2	4.4	3.9



CUMI – Consolidated F19

	YTI	D Mar 2019		YTD March 18			
	Sales	PBT	PAT	Sales	PBT	PAT	
CUMI Stand Alone	1,75,191	24,791	16,609	1,55,138	20,519	14,348	
Less : Dividends received from Sub		(2,273)	(2,236.66)		(3,373)	(3,384	
& JV & URP on Inventory							
CUMI STAND ALONE	1,75,191	22,517	14,372	1,55,138	17,146	10,964	
		12.9%	8.2%		11.1%	7.1%	
CUMI - America	6,470	(242)	(242)	4,814	(327)	(327	
Net Access	4,514	349	267	4,010	372	273	
SEDCO	1,872	237	194	2,388	712	507	
Sterling Abrasives	9,008	1,335	942	7,893	1,343	912	
CUMI - Australia	10,600	1,659	1,164	9,032	1,524	1,067	
CUMI- Middle East	1,163	1	1	2,041	80	80	
CUMI - International	-	3,133	3,133	-	2,838	2,838	
VAW	62,988	11,526	8,913	56,567	11,867	9,038	
FZL	10,904	(2,124)	(2,470)	7,634	(1,623)	(1,623	
CUMI - China	2,137	(173)	(173)	2,104	(89)	(89	
CUMI Europe	-	(5)	(5)	-	(76)	(76	
TRIL	-	-	-	-	(1)	(1	
Sub Total	1,09,657	15,697	11,725	96,483	16,619	12,599	
Less: Inter Company Adjustments	(19,287)	(3,330)	(3,330)	(18,575)	(3,070)	(3,070	
Less: Minority Interest			8			(399	
CUMI SUBSIDIARIES TOTAL	90,370	12,367	8,403	77,908	13,549	9,130	
		13.7%	9.3%		17.4%	11.7%	
Joint Venture (Proportionate Share)							
Murugappa Morgan Thermal Ceram	-	-	1,050	-	-	715	
Ciria India Ltd	-	-	328	-	-	228	
Wendt India Ltd	-	-	615	-	-	523	
CUMI's JVs	-	-	1,993	-	-	1,466	
CUMI Consolidated	2,65,561	34,885	24,768	2,33,045	30,696	21,560	
	2,00,001	13.1%	9.3%	2,00,040	13.2%	9.3%	







ENABLERS

Technology.
Innovation.
Industry 4.0.
Service.
People / Partners
Brand.



CUMI – Making Technology Matter



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Technology

Design

Solutions

Services

Processes

Making Innovations Matter - CUMIND





- Graphic Content
- IP filed for Cumind Logo and Dot Structure
- Launch Of CUMIND Hub in selected locations.



Making Technology Matter – DSIR Labs

DSIR approved R&D Facility in IC Hosur



R&D Surface Technology Center – Abrasives

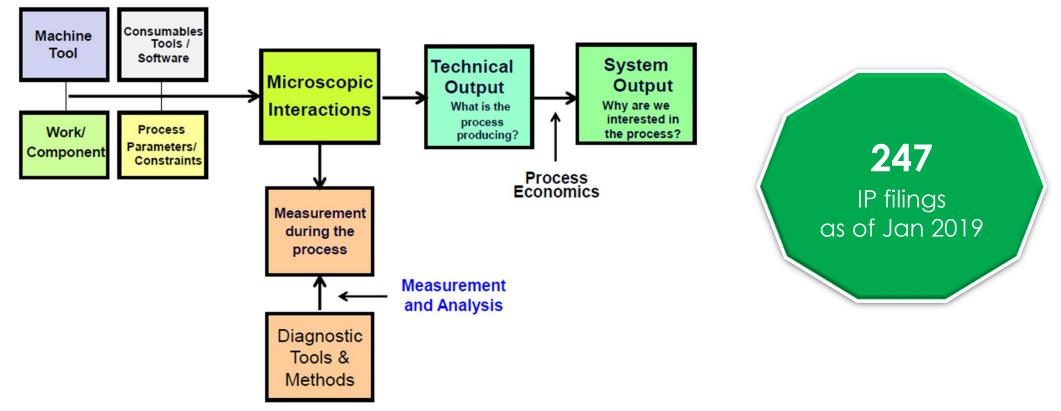


The Company along with its subsidiaries/ JV/ associates - has set up 7 state of the art DSIR (Department of Science and Industrial Research) approved R&D centres at all its divisions.



Making Design Matter – Research & Development

"Systems Thinking" Approach to Design



Across all business units of CUMI, there has been continuous focus of technology innovations leading to achieving a total of **247 IPs in form of Patents, Design Registrations and Trademark Registrations.**



Making Solutions Matter – IOT Elements in Products

		i-CMS		and the second se
Home Day Week	k Month Quarter Year Custom			
D Dashboard	Refractive Index Sump Level Top Up Vol	ACU Temp Conduct		CUMI
Reports	pł	1	Information	Saimi
10-			MACHINE NAME	
- \			Machine 1	
			Machine Serial No:	
10-			Machine Type:	
-			machine Type:	
-			Company: Cumi	
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	6/18 11:20:59 Machine 1 6/18 11:20:36 Machine 1	9.50	2.85	MPLY WITH PAR IN MIRE TY CODE BI
12/0	6/18 11:20:56 Machine 1	9.50	23.00 Installed By:	CUM150 40 1279201
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Remote Monitoring & Diagnostics For Coolants

Intelligent Grinding Wheel

CUMIAWARE – Wear Monitoring System



CUMIAWARE Installed Equipment



CUMIAWARE Monitor Panel

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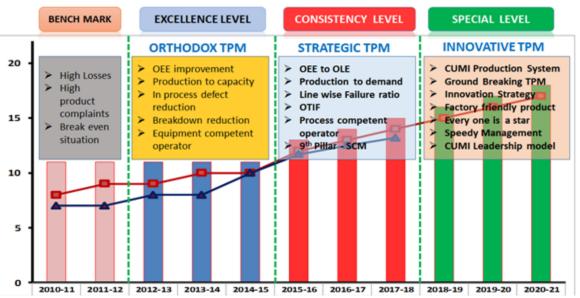




Making Processes Matter – TPM & IOT in Manufacturing



TPM Philosophy – Manufacturing Excellence



Productivity Improvement





Making Services Matter – Installation & Support





Making Partners Matter

Abrasives – Ratna Dealers Meet



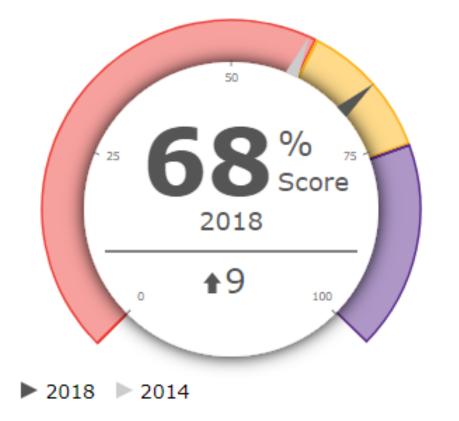


CUMI - Making Engagements Matter





CUMI – Engagement Score - 2018



91%	
Participatio	n Rate
Completed	n Rate 1764

CUMI's overall engagement score is now 68%, up 59% in 2014



Employee Engagement

ihio	yee LII	Sagement	_	of Aug 2018
W		Survey Result presentation by Aon	•ABR & SR – 1 st Aug 2018 •Wendt & IC – 8 th Aug 2018 •EMD – 10th Aug 2018	Before 1st
A Y		Communication of Results to employees	 Communicated to MS/MMS through mail To be communicated to NMS through posters 	week of Aug 2018 Before 2 nd
F O		Focus Group Discussion	 No.1 with MS/MMS/NMS at different job level and age group No.2 with Leadership team /HOD in respective Units 	Before 3 rd
R W		Action/Plan	•Collate the Improvement/suggestion points from the FGD's and derive Action/Plan for each unit	week of Aug 2018
A R D		Engagement Calendar	• Based on the proposed plan and action Unit wise Engagement Calendar will be to be designed and rolled out	Before 4 th week of Aug 2018
		Review Mechanism	•Review to be conducted by the Corporate team to track the adherence of Plan/ Action as per the Engagement Calendar	Once in a month

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Before 10th

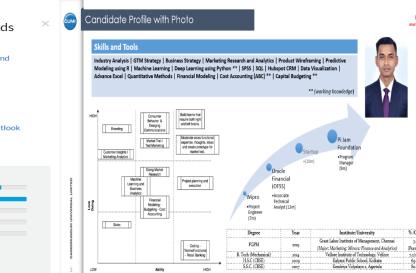
Making People Matter – New Recruits

Dialogue in the Dark





CUMI's Glassdoor Reviews



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Presentation by Candidate is introduced in the Campus hiring process to assess the presentation skill, talent, creativity of the students

Process Improvement for GETs Retention:

- Briefing the job role prior to hiring
- Structured induction program and handholding of GETs during their training period
- Assigning mentor and buddy for each GET
- Training interventions like YOLO
- Moved to project based training (GETs take up specific projects during their training period and work on it)





Making People Matter - Mentorship



Catalyst- CUMI's unique program on Mentoring, was launched in December. It's a flexible and self-initiated program where any employee can reach out to a Mentor from a pool of Mentors.

For preliminary mentor interaction, two hour Mentor Marathon was initiated. More such mentoring chats planned for 2019-20 so employees are able to leverage this program for their guidance and growth.



Awards & Recognition



CUMI IC has been awarded the Gold Certification in Manufacturing Excellence Award by Frost & Sullivan



Awards & Recognition





ICAI Excellence Award in Financial Reporting for FY 2018



F20 – Q1 Results – Standalone CUMI

Rs. in lakhs

2018-19 Q1 - Act	2018-19 Q4 - Act	Description	Q1 - F20 Actuals	Q on Q %
41003	44567	SALES	42371	3%
6936	8410	EBITDA	6204	-11%
16.9%	18.9%	EBITDA %	14.6%	
5863	7234	PBT	6181	5%
14.3%	16.2%	PBT%	14.6%	
3920	4923	PAT	4507	15%
9.6%	11.0%	PAT%	10.6%	



F20 – Q1 CUMI Consolidated

	Quarter	ended Ju	ine 19	Quarter	ended Ju	ne '18
	Sales	PBT	PAT	Sales	PBT	PAT
CUMI Stand Alone	42,430	6,181	4,507	41,003	5,863	3,920
Less : Dividends received	_	(1,602)	(1,728)	_	(947)	(910)
from Sub & JV / Inventory						
CUMI STAND ALON	42,430	4,579	2,779	41,003	4,916	3,010
		10.8%	6.5%		12.0%	7.3%
CUMI - America	1,713	12	12	1,613	(7)	(7)
Net Access	1,076	40	30	1,054	89	64
SEDCO	636	167	123	611	171	126
Sterling Abrasives	1,905	175	121	1,964	351	255
CUMI - Australia	2,505	421	289	2,430	481	338
CUMI- Middle East	430	(12)	(12)	228	(26)	(26)
CUMI - International	-	3,378	3,378	-	3,153	3,153
VAW	16,453	2,874	2,245	15,216	3,263	2,549
FZL	2,660	(820)	(820)	2,627	(221)	(221)
CUMI - China	553	10	10	500	(33)	(33)
CUMI Europe	-	(3)	(3)	-	(0)	(0)
TRI	-	-	-	-	-	-
Sub Total	,	6,241	5,372	26,244	7,220	6,197
Less: Inter Company Adj	(4,006)	(3,599)	(3,599)	(4,668)	(3,329)	(3,329)
Less: Minority Interest	-	-	136	-	-	(243)
CUMI SUBSIDIARIES	23,927	2,642	1,910	21,576	3,890	2,625
		11.0%	8.0%		18.0%	12.2%
Joint Venture						
MMTCL	-	-	261	-	-	309
Ciria India Ltd	-	-	169	-	-	128
Wendt India Ltd	-	-	143	-	-	214
CUMI's JVs	-	-	573	-	-	652
CUMI Consolidated	66,357	7,221	5,262	62,579	8,806	6,286
		10.9%	7.9%		14.1%	10.0%







