

Status of Galvanized Steel Use in Indian Automobiles

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Purpose

- *To set the stage for the next speakers to address the huge potential for galvanized steel in Indian made vehicles*



Zinc – the Great Protector

- ***Galvanized steel has been used for decades in Europe and NA for body panels***
- ***India has started using galvanized and galvanneal steel for body panels, but only for export models***
- ***Zinc sacrifices itself to protect the strength and safety of steel in the automobile body in white***
- ***The rate of dissolution of zinc is slow, yet effective to protect steel for 10+ years in automobiles and much, much longer in construction and infrastructure applications***



Indian Auto Production and Growth History

Category	2007-08	2008-09	2009-10	2010-11	2011-12
Passenger Cars	1,777,583	1,838,593	2,357,411	2,982,772	3,123,528
Commercial Vehicles	549,006	416,870	567,556	760,735	911,574
3-Wheelers	500,660	497,020	619,194	799,553	877,711
2-Wheelers	8,026,681	8,419,792	10,512,903	13,349,349	15,453,619
Grand Total	10,853,930	11,172,275	14,057,064	17,892,409	20,366,432

Data source: Society of Indian Automobile Manufacturers

**Production growing at > 25%
per year since 2008**





Opportunity for zinc coated steel in Indian automobiles

Assumptions:

- 400 kilograms of 50G/50G coated steel per vehicle
- Skin panels - 40% (160 kg @ 0.7mm)
- Inner panels - 50% (200 kg @ 0.8mm)
- Structural - 10% (40 kg @ 1.2mm)
- Engineered scrap (Offal) @ 25%
- Actual zinc coating 10% over specification minimum
- 3.3 Million units in 2013



Result:

Zinc content in 400 kilograms of 50G/50G coated steel per vehicle = 10.618kg zinc per vehicle; or 1.3 M Tonnes of galvanized steel





Indian Flat Rolled, Long Products, & Coated Steel Consumption (M Tonnes)

Category		2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Flat Rolled Steel		21.11	22.02	21.92	24.52	27.00	34.95	36.30
Long Products		24.73	26.30	27.00	30.48	33.46	33.98	36.63
Coated Steel Production		4.39	4.38	4.58	5.62	5.55	5.90	6.50
Coated Steel * Consumption		2.40	2.62	3.33	4.51	4.68	4.89	5.50
% Coated Steel**		9.4 %	9.9 %	12.6 %	15.0 %	14.4 %	14.9%	15.1%

Data source: JPC Indian Steel

*** Consumption = (Production + Imports) - Exports**

****Coated Steel consumption as % of Flat Rolled Consumption**

% Coated Steel usage in NA is 27%



The Good News is

- ***The Indian automotive market potential is huge***
- ***Production capacity is growing at 25% annually***
- ***Exports of Indian made vehicles is 35% and growing***
- ***India is expected to become a global centre for the design of world class small cars***
- ***A new BIS Specification for Automotive coated steels is nearing completion***

The Bad News is

- ***The Quality requirements for skin panels is NOT locally available***
- ***The supply base for auto exposed quality is limited and will be of concern in the short term***
- ***Steel industry has to invest in new CGL's capable of making new generation zinc coated AHSS***
- ***Indian car buyers of domestic made vehicles are receiving less durable vehicles than export models or foreign vehicles because of the lack of coated steel usage***

This is a detailed map of India and its surrounding regions. The map shows the following:

- Neighboring Countries:** Pakistan to the west, Afghanistan to the northwest, China to the north, Nepal to the north, Bhutan to the northeast, Bangladesh to the east, Burma to the east, and Sri Lanka to the south.
- Indian States and Union Territories:** Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, Uttar Pradesh, Bihar, West Bengal, Orissa, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Goa.
- Major Cities:** Srinagar, Jammu, Delhi, Jaipur, Mumbai (Bombay), Hyderabad, Bangalore, Chennai (Madras), Kolkata, and New Delhi.
- Bodies of Water:** Arabian Sea to the west, Bay of Bengal to the east, and Indian Ocean to the south.
- Islands:** Lakshadweep, Andaman Islands, Nicobar Islands, and Sri Lanka.
- Red Pushpins:** Numerous red pushpins are placed on the map, indicating specific locations of interest. They are concentrated in the northern and central regions, including Srinagar, Delhi, Jaipur, and Mumbai.



Company	Location	# CGL's	Capacity MT	GI	GI / GA	AZ	T X W mm	Zinc Usad KT	AE Capability
Bhushan	Ghaziabad, Uttar Pradesh	4	400,000	3		1			No
Bhushan	Khopoli, Maharashtra	2	200,000	1		1			No
Essar	Hazira, Gujerat	2	500,000	2					No
Essar	Pune, Maharashtra	1	450,000	1					No
JSW	Tarapur, Maharashtra	5	750,000	3	2				Yes - GA
JSW	Vasind, Maharashtra	2	400,000	2					No
JSW	Kamleswar, Maharashtra	2	330,000	1		1			No
POSCO	Mangaon, Maharashtra	1	400,000		1				Yes - GA
SAIL	Bokaro, Jharkhand	1	170,000	1					No
SAIL	Rourkela, Odisha	1	290,000	1					No
Tata	Jamshedpur, Jharkhand	2	450,000	1	1		1560 mm	15.5	Yes - GA
Tata Bluescope	Jamshedpur, Jharkhand	1	200,000			1			No
Uttam Galva	Khopoli, Maharashtra	2	200,000	2			1250mm		No
Indian Steel		2	370,000	2					NoNo
Lloyds	Wardha, Maharashtra	1	125,000	1					No
Metalman	Pithampur, Madhya Pradesh	1	70,000	1				2.8	No
National	Sejwaya, Madhya Pradesh	1	280,000	1					No
RSAL (Ruchi)	Indore, Madhya Pradesh	1	55,000	1					No
Steelco	Palej, Gujerat	1	80,000	1					No
Shree Precoat	Sanaswadi, Maharahstra	2	500,000	2					No
Vardhman	Patiala, Punjab	1	50,000	1			.14 - .80; 1100mm		No
TOTALS		36		28	4	4			



Coated Steel Usage on Indian Made Vehicles for Export (2013)

Automobile Type	Market	Skin (Exposed) Panels	Inner (Unexposed) Panels	Underbody Structural
Fiat India (Chrysler) Motors*	India	60G/60G EG or 45/45GA HD	45/45GA HD (MS6000-44)	45/45GA HD
	Europe	60G/60G HD or EG	60G/60G HD or EG (MS6000-55)	60G/60G HD or EG
Ford Motor Company**	India	60G/60G EG or HD 60G/60G HD	60G/60G HD	60G/60G HD
	Europe	60G/60G EG or HD 60G/60G HD	60G/60G HD	60G/60G HD
General Motors Corp.***	India	60G/60G EG	60G/60G HD	60G/60G HD
	Europe	60G/60G EG for 80%; HD for 20% of parts)	60G/60G HD	60G/60G HD
Honda Motors	India	45/45GA HD	45/45GA HD	45/45GA HD (few parts 60/60)
	Europe	45/45GA HD	45/45GA HD	45/45GA HD (few parts 60/60)
Hyundai Motors	India	45/45GA HD	45/45GA HD	45/45GA HD
	Europe	45/45GA HD	45/45GA HD	45/45GA HD
Mahindra & Mahindra Motors	India	45/45GA HD	45/45GA HD	45/45GA HD
	Europe	45/45GA HD	45/45GA HD	45/45GA HD
Maruti Suzuki Motors	India	45/45GA HD	45/45GA HD	45/45GA HD
	North America	45/45GA HD	45/45GA HD	45/45GA HD
Nissan Motors	India	45/45GA HD	45/45GA HD	45/45GA HD
	Europe	45/45GA HD	45/45GA HD	45/45GA HD
Tata Motors	India	45/45GA HD	45/45GA HD	45/45GA HD
	Europe	60G/60G EG	60G/60G HD	60G/60G HD
Toyota Kirloskar Motors	India	45/45GA HD	45/45GA HD	45/45GA HD
	Europe	45/45GA HD	45/45GA HD	45/45GA HD
Volkswagen India Ltd	India	50G/50G EG	50G/50G HD	50G/50G HD
	Europe	50G/50G EG	50G/50G HD	50G/50G HD
Volkswagen - Audi	India	45/45GA HD	45/45GA HD	45/45GA HD
	Europe	45/45GA HD	45/45GA HD	45/45GA HD
BMW****	India	50G/50G EG & HD	50G/50G HD	50G/50G HD
	Europe	50G/50G EG & HD	50G/50G HD	50G/50G HD

* Fiat (Chrysler) making running change from 45/45GA to 60G/60G for new & revamped models. 95% of BIW will be coated steel

** Ford is making a running change from 60G/60G to 50G/50G for new and existing car platforms. Skin panels are currently 80% EG and 20% HD

*** GM uses 36G/36G EG for roof panels on luxury models only; Cold Rolled steel is otherwise used for roof panels

****BMW use 50G/50G HD and EG for outer panels & 50G/50G HD for inners & structurals. (Models produced: X3=125,000; X5=107,000; X6=46,000; Steel supplied through Drive & Gestamp



Anticipated Business Results

- ***Over 1 million tonnes of exposed skin panel galvanized and galvanneal steel will be required to meet expected demand from Indian auto manufacturers***
- ***An additional 1.3 million tonnes of coated steel will be required for unexposed and structural components***
- ***Imports of high cost product from Asia Pacific and Europe will be displaced***



In Conclusion ...



- *India is poised to become the major global hub for the design and production of small cars*
- *Current lack of exposed quality galvanized and galvanneal steel is limiting Indian conversion to coated steel*
- *Indian made vehicles built for export are using extensive amounts of zinc coated steel*
- *However, the quality and durability of Indian made vehicles sold domestically are INFERIOR to those exported & that needs to change!*



Zinc...essential for life



ZINC
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Thank You

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Expected Capacity Additions

Year-ending 31 March	Crude steel capacity (millions of tonnes)					
	2007	2008	2009	2010	2012	2015 F
Tata Steel (India)	5	5	6.8	6.8	6.8	12.7
Essar Steel (India)	4.6	4.6	4.6	4.6	9.2	9.2
Ispat	3.6	3.6	3.6	3.6	3.6	3.6
JSW Steel	3.8	3.8	3.8	7.8	11	11
RINL	3.5	3.5	3.5	3.5	3.5	6.3
JSPL	2.9	2.9	2.9	2.9	4.9	6.9
SAIL	13.8	13.8	13.8	13.8	15.9	24.7
Bhushan Steel	0.3	0.3	0.3	0.3	2.2	5.1
Bhushan Power & Steel	1.4	1.4	1.4	1.4	1.4	1.4
Others	17.9	20.9	25.6	28	28	31.6
Total crude Steel Capacity	56.8	59.8	66.3	72.8	86.6	112.5

Source : "India Steel Sector:India-An outperformer in Steel" , BNP Paribas Securities via Thomson research, 19 October 2010