

# Welding in India—A Typical Survey

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## Introduction

A questionnaire on coated electrodes was sent to various industries associated with welding, with a view to finding out the common problems faced by them in this regard.

The response from the electrode users was as high as 80%. However, while several electrodes manufacturers and statutory bodies have not replied to specific questions, they have all the same expressed their desire to know the findings of this survey.

It is hoped that the exercise carried out will prove useful and various organisations will come forward with solutions to the various problems discussed herein. The views expressed in this paper are only findings of an opinion survey and are not based on any existing statistical data on facts and figures. Questionnaires were sent only to major fabricators of chemical plant equipment. It may be mentioned that the questionnaires were not sent to all shipyards, coach builders and others who are also big users of electrodes.

Information collected is presented at the end of this paper in the format of the questionnaire sent out.

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## Materials used and Future Trend

The survey has indicated that India is still very much in the carbon steel and low alloy steel era. Majority of welding is still carried out on carbon steel. Most of the replies have also confirmed that the same trend is predicted for the future. However, stainless steel fabrication is gaining momentum. Next to carbon steel, major work is presently carried out on stainless steels. The opinions of the fabricators, as regards their future research and development plans, indicate that major development work is going to be concentrated on stainless steels, which the writers presume are austenitic stainless steels. The statements on R & D, further show that most of the Indian fabricators are fairly familiar with the problems associated with carbon steel welding. However, they require substantial assistance on stainless steel welding.

A few fabricators also have plans for uncommon materials like CrMo steels, nickel steel, titanium, copper and aluminium.

From the above, one may suggest that electrode manufacturers should plan suitably, their future manufacture.

### Testing Facilities

The views expressed on the above subject have been more or less unanimous. All replies confirm that facilities in India for destructive/nondestructive testing and chemical analysis range from 'just average' to a 'satisfactory' level.

It would have been a healthier sign if all had un-animously declared that the existing facilities are satisfactory. Here again it is felt that there is substantial scope for starting new laboratories.

Some readers might have preferred addition of metallographic and corrosion tests in the questionnaire and possibly separating NDT from destructive testing. In this connection the writer may mention that, the intention was only to find out if atleast minimum facilities are available in India.

### Quality of Electrodes

It is indeed heartening to note that all except one fabricator have replied that indigenous electrodes are comparable to foreign electrodes. The writers could not quite make out if the answers were their considered opinions, or if the fabricators played safe by being noncommittal.

Several fabricators have also insisted that their satisfaction as regards electrodes is bound to improve with more technical guidance and better pricing by the electrode manufacturers.

Electrode manufacturers should take a hint here and straightaway make attempts to improve on their merchandising and after sales service. They could possibly print out consolidated booklets on technical data and present the same to all fabricators. Besides, it is suggested that the electrode manufacturers could make suitable educational films on relevant topics for the benefit of the fabricators. Any financial assistance, if needed, it is hoped that the fabricators will willingly share with the electrode manufacturers.

### Communication

The survey has made it amply clear that there is acute shortage of welding schools, journals and seminars. Besides, it must be said that while most of the fabricators have expressed the wish that they do require outside help for welding problems, they have at the same time mentioned that they rarely publish their findings or the problems confronted by them.

It will be useful for all concerned, if all fabricators openly expressed their problems through welding seminars and journals. It seems that while fabricators are not secretive about technical matters, they are all the same shy of writing articles and presenting papers.

### Conclusion

1. India is still very much in the carbon steel era and a similar trend is predicted for the immediate future.
2. Stainless steel fabrication is on the increase and a bright future is predicted in the years to come.
3. There is sufficient scope for expansion of all testing facilities.
4. Indian electrodes are comparable to foreign electrodes. However more technical guidance by electrode manufacturers to the fabricators is called for.
5. There is a dearth of welding schools and magazines. Better communication and sharing of knowledge among various parties, is desired, through journals and seminars.

The writers wish to record their thanks to the management of Powergas India Limited, for their help rendered, to make this exercise possible.

### Inferences of the Survey

1. Present electrode consumption percentagewise (in quantity)
 

Carbon Steels	(80%)	
Stainless Steel	(18%)	
Nickel Steel	( )	Negligible.
Others (specify)	(2%)	(nonferrous)
2. Future predicted consumption of electrodes, percentagewise (in quantity)
 

Carbon Steels	(68.5%)	
Stainless Steels	(30%)	
Nickel Steel	( )	Negligible
Others	(1.5%)	
3. Need for distribution of efforts on Research & Development work :
 

Carbon Steel	(22%)
Stainless Steel	(50%)
Nickel Steel	(28%)
Others (specify)	( )

4. Opinion on facilities for destructive and non-destructive testing in India (replywise percentages)

Excellent	(9%)
Good	(50%)
Average	(30%)
Poor	(11%)

5. Opinion on facilities for chemical analysis in India (replywise percentages)

Excellent	( )
Good	(53%)
Average	(40%)
Poor	(7%)

6. Opinion on indigenous electrodes compared to imported electrodes (replywise percentages)

Superior	( )
Comparable	(98%)
Inferior	(2%)

7. Opinion on the most contributory factor of consumer satisfaction, (replywise percentages)

Better pricing	(12.5%)
Timely deliveries	(19%)

Technical guidance by manufacturers (28%)

Good performance of the electrode (40.5%)

8. Opinion on extent of participation in publishing research findings on welding problems (replywise percentages)

Never	(20%)
Often	(16%)
Occasionally	(64%)

9. Opinion on the most contributory factor towards improvement of welding communication, (replywise percentages)

More welding seminars	(30%)
More welding journals	(30%)
More welding schools/colleges	(40%)

10. Extent of outside help sought in solving welding problems (replywise percentages)

Never	(14%)
Frequently	(14%)
Occasionally	(72%)

## TO ALL MEMBERS

***Please inform immediately THE INDIAN INSTITUTE OF WELDING, 48/1, Diamond Harbour Road, Calcutta-700 027, of any change in your address to facilitate the mailing of periodicals and papers.***

**EDITOR**