

# 9837

Sample Res

|                         |                               |                          |                         |                   |
|-------------------------|-------------------------------|--------------------------|-------------------------|-------------------|
| Sample Result Name      | Type                          | Measure Date Time        | Recalculation Date Time | Origin            |
| 9837(dia-90 ) hno-s-270 | Unknown                       | Tuesday, August 26, 2014 | 12:08:14 PM             | Measured          |
| Method Name             | Method Version                | Operator Name            | Check Type              | Check Status      |
| Fe-30-MO                |                               | SARA SAE                 | None                    | Not Used          |
| Grade Verification Name | Grade Verification Similarity | Correction Type          | Type Corr Sample Name   | Grade Search Name |
|                         | 0                             | None                     |                         |                   |
| Grade Search Similarity | Type                          | Status                   | Outlier Removal         |                   |
| 0                       | None                          | Not Used                 |                         |                   |
| Sample Name             | Grade                         |                          |                         |                   |
| 9837(dia-90 ) hno-s-270 |                               |                          |                         |                   |

|         | C<br>Conc<br>%  | Si<br>Conc<br>% | Mn<br>Conc<br>% | P<br>Conc<br>% | S<br>Conc<br>% | Cr<br>Conc<br>% | Mo<br>Conc<br>% | Ni<br>Conc<br>% | Al<br>Conc<br>% | Co<br>Conc<br>% | Cu<br>Conc<br>% | Nb<br>Conc<br>% | Ti<br>Conc<br>% | V<br>Conc<br>% | W<br>Conc<br>% | Pb<br>Conc<br>% | Sn<br>Conc<br>% | As<br>Conc<br>% | Zr<br>Conc<br>% |
|---------|-----------------|-----------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| 1       | 0.083           | 0.083           | 0.43            | 0.033          | 0.032          | 0.099           | 0.010           | 0.043           | 0.013           | 0.006           | 0.065           | <0.005          | <0.0010         | 0.009          | <0.040         | <0.010          | 0.024           | 0.008           | <0.003          |
| 2       | 0.071           | 0.078           | 0.42            | 0.032          | 0.027          | 0.090           | 0.009           | 0.045           | 0.019           | 0.006           | 0.063           | <0.005          | <0.0010         | 0.009          | <0.040         | <0.010          | 0.020           | 0.009           | <0.003          |
| 4       | 0.068           | 0.076           | 0.42            | 0.037          | 0.032          | 0.091           | 0.007           | 0.048           | 0.015           | 0.006           | 0.065           | <0.005          | <0.0010         | 0.009          | <0.040         | <0.010          | 0.023           | 0.009           | <0.003          |
| 6       | 0.069           | 0.086           | 0.42            | 0.039          | 0.033          | 0.092           | 0.008           | 0.053           | 0.024           | 0.006           | 0.066           | <0.005          | <0.0010         | 0.010          | <0.040         | <0.010          | 0.019           | 0.012           | <0.003          |
| 7       | 0.091           | 0.099           | 0.43            | 0.041          | 0.036          | 0.091           | 0.010           | 0.055           | 0.018           | 0.005           | 0.067           | <0.005          | <0.0010         | 0.009          | <0.040         | <0.010          | 0.020           | 0.013           | <0.003          |
| Rep     | 0.076           | 0.084           | 0.42            | 0.036          | 0.032          | 0.092           | 0.009           | 0.049           | 0.018           | 0.006           | 0.065           | <0.005          | <0.0010         | 0.009          | <0.040         | <0.010          | 0.021           | 0.010           | <0.003          |
| Min Cal | 0.006           | 0.005           | 0.004           | 0.003          | 0.002          | 0.005           | 0.003           | 0.005           | 0.003           | 0.005           | 0.002           | 0.005           | <0.0010         | 0.009          | <0.040         | <0.010          | 0.021           | 0.010           | <0.003          |
| Mean    | 0.076           | 0.084           | 0.42            | 0.036          | 0.032          | 0.092           | 0.009           | 0.049           | 0.018           | 0.006           | 0.065           | <0.005          | 0.0010          | 0.002          | 0.040          | 0.010           | 0.002           | 0.005           | 0.003           |
| Max Cal | 3.00            | 5.04            | 18.12           | 0.18           | 0.30           | 36.00           | 10.20           | 55.2            | 6.24            | 21.60           | 7.44            | 3.60            | <-0.001         | 0.009          | <-0.019        | <-0.003         | 0.021           | 0.010           | <0.0001         |
|         | Ca<br>Conc<br>% | B<br>Conc<br>%  | Fe<br>Conc<br>% |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |
| 1       | 0.008           | 0.002           | 99.0            |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |
| 2       | 0.004           | 0.002           | 99.0            |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |
| 4       | 0.004           | 0.002           | 99.0            |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |
| 6       | 0.007           | 0.002           | 99.0            |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |
| 7       | 0.012           | 0.002           | 98.9            |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |
| Rep     | 0.007           | 0.002           | 99.0            |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |
| Min Cal | 0.0005          | 0.0005          |                 |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |
| Mean    | 0.007           |                 | 99.1            |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |
| Max Cal | 0.016           | 0.025           |                 |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                 |                 |                 |                 |

Qualify in 1008 as per  
SES 26-615  
Deepali



# SHARU HI TECH ALLOYS PVT. LTD.

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## QUALITY ASSURANCE DEPARTMENT METALLURGICAL TEST REPORT

### TEST CERTIFICATE



ISO/TS  
16949 : 2009

M/S.

SARA SAE PRIVATE LIMITED DIVISION-II  
A-2 SARA INDUSTRIAL ESTATE LTD.  
CHAKRATA ROAD, SELAQUI RAMPUR

DEHRADUN (UTTRAKHAND)

T.C. No.

0535

Date

12-08-2014

Invoice No.

Truck No.

HR58/2467

| GRADE   | SIZE  | HEAT NO. | MANUFACTURING ROUTE | COLOUR CODE | SUPPLY COND. | QNTY. M.T. | NO. OF PCS. |
|---------|-------|----------|---------------------|-------------|--------------|------------|-------------|
| SAE1008 | 90 MM | S-270    | L/HT                | YELLOW      | AS ROLLED    | 4.175 MT   | LOOSE       |

### CHEMICAL COMPOSITION IN PERCENTAGE

|        | C    | Mn   | S     | P     | Si   | Ni | Cr | Mo | V | Al    | Cu | Sn | Ti | B | Ca |
|--------|------|------|-------|-------|------|----|----|----|---|-------|----|----|----|---|----|
| Min.   | -    | -    | -     | -     | -    | -  | -  | -  | - | -     | -  | -  | -  | - | -  |
| Max.   | -    | -    | -     | -     | -    | -  | -  | -  | - | -     | -  | -  | -  | - | -  |
| Actual | 0.07 | 0.42 | 0.024 | 0.036 | 0.08 | -  | -  | -  | - | 0.025 | -  | -  | -  | - | -  |

### METALLURGICAL RESULTS

| INCLUSION RATING IS : 4163/JK CHART/ASTM E-45A |     |   |     |   |     |   |     | Aust. Grain Size<br>ASTM No.<br>(E-112) | 6/7                 | Gas content (ppm) |                |  |
|------------------------------------------------|-----|---|-----|---|-----|---|-----|-----------------------------------------|---------------------|-------------------|----------------|--|
|                                                | A   |   | B   |   | C   |   | D   |                                         |                     | Decarb.<br>(MM)   | O <sub>2</sub> |  |
|                                                | T   | H | T   | H | T   | H | T   | H                                       | N <sub>2</sub>      |                   |                |  |
| STD<br>MAX                                     |     |   |     |   |     |   |     |                                         | Micro-<br>Structure | D+F               | H <sub>2</sub> |  |
| ACTUAL                                         | 1.0 |   | 1.0 |   | 1.0 |   | 1.0 | 0.5                                     |                     |                   |                |  |

### MECHANICAL PROPERTIES

|        | U.T.S. | Y.S. | EL % | RA % | Impact Value | Hardness<br>B.H.N. / Rb | MACRO | ULTRASONIC TEST | MIX UP TEST |
|--------|--------|------|------|------|--------------|-------------------------|-------|-----------------|-------------|
| Reqd.  |        |      |      |      |              |                         | OK    | OK              | OK          |
| Actual |        |      |      |      |              |                         |       |                 |             |

### HARDENABILITY (HRC) AS PER IS : 3848

|          |  |  |  |  |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|--|--|--|--|
| Distance |  |  |  |  |  |  |  |  |  |  |
| Regd.    |  |  |  |  |  |  |  |  |  |  |
| Actual   |  |  |  |  |  |  |  |  |  |  |

Remarks :

Qualify in 100%  
as per spec 20-615  
Nypali