

# SAIL HARD – Technical Datasheet

## 1. Chemical & Mechanical Properties

### A. Chemical Composition

| Element              | % Composition (Max / Range) |
|----------------------|-----------------------------|
| Carbon (C)           | ≤ 0.23                      |
| Manganese (Mn)       | ≤ 1.60                      |
| Silicon (Si)         | ≤ 0.50                      |
| Phosphorus (P)       | ≤ 0.050                     |
| Sulphur (S)          | ≤ 0.050                     |
| Aluminium (sol) (Al) | ≤ 0.10                      |
| Chromium (Cr)        | ≤ 0.65                      |
| Nb + V + Ti (total)  | ≤ 0.15                      |

### B. Mechanical Properties

| Property           | Value                      |
|--------------------|----------------------------|
| Hardness (Brinell) | ≥ 200 HBW (core ≥ 180 HBW) |
| Yield Strength     | ≈ 250 MPa (typical)        |
| Tensile Strength   | 430 – 560 MPa (typical)    |
| Elongation         | ≥ 18 % (typical)           |

## 2. Equivalent / Alternative Grades

| Standard / Brand | Grade    | Key chemistry (max %)             | Hardness min (HB) | Notes / Strength band                    |
|------------------|----------|-----------------------------------|-------------------|--|
| Tata Steel       | TISCERAL | C 0.23, Mn 1.6, Si 0.50, P/S 0.05 | 200               | Indian 200 HB plate; chemistry identical |
| JSPL             | JSP HARD | C 0.23, Mn 1.6, Si 0.50, P/S 0.05 | 200               | Wear-plate from JSPL                     |

|                         |                          |                                   |     |                                     |
|-------------------------|--------------------------|-----------------------------------|-----|-------------------------------------|
| <b>Evonith (Uttam)</b>  | EVONITH HARD (AS-07)     | C 0.23, Mn 1.6, Si 0.50, P/S 0.05 | 200 | Low-C variant for sour environments |
| <b>SSAB</b>             | Hardox 200               | C 0.21, Mn 1.60, Cr 0.60          | 200 | Global AR200 plate                  |
| <b>Generic EN stock</b> | 200 BHN structural plate | similar to SAIL HARD              | 200 | EU generic 200 HB wear plate        |

### 3. Common Applications

- Liner plates in hoppers, chutes and conveyor buckets
- Earth-moving & mining equipment (dump-body floors, loader buckets)
- Agricultural trailer beds and grab arms
- Truck/rail wagon side-walls where abrasion is moderate
- Structural members needing better dent / gouge resistance than IS 2062 E250 plates

### 4. Standard Conformance

SAIL HARD is a mill-proprietary abrasion-resistant steel produced by Steel Authority of India Ltd. It is supplied to internal specification “SAIL-HARD”, guaranteeing a core hardness  $\geq 200$  HBW with the chemistry shown above. No dedicated BIS or ASTM designation exists; designers specify by hardness and chemistry together.

### 5. Disclaimer

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