

Data sheet: B2.1

Cold Rolled Steel Sheet for General and Structural Applications

General description

This data sheet describes the properties of ArcelorMittal South Africa's Commercial Quality and a selection of available SAE/AISI grades. Cold rolled commercial steels are intended for exposed or unexposed parts where bending, moderate drawing, forming and welding may be involved. These steels may normally be welded without special precautions using any of the standard arc or resistance welding processes.

These steels can readily be painted. Refer to the paint manufacturers' prescribed methods for pre-treatment and application.

Chemical composition

Table 1. Chemical composition specification for General (ladle analysis, percent)

Specification	C	Mn	P max	S max
Commercial Quality	0,15 max	1,50 max	0,100	0,060
SAE/AISI 1006-00	0,08 max	0,45 max	0,030	0,035
SAE/AISI 1008-00	0,10 max	0,50 max	0,030	0,035
SAE/AISI 1010-00	0,08 - 0,13	0,30 - 0,60	0,030	0,035
SAE/AISI 1012-00	0,10 - 0,15	0,30 - 0,60	0,030	0,035
ASTM A1008-01 CS Type A (HRB 40-60)	0,10 max	0,5 max	0,030	0,035

Table 2. Chemical composition specification for structural (ladle analysis, percent)

Specification	C	Mn	P max	S max
ASTM A 1008 - 06 SS GR 275 TYPE 1	0,20 max	1,35 max	0,035	0,035
ASTM A 1008 - 06 SS GR 230 TYPE 1	0,20 max	0,60 max	0,035	0,035
ASTM A 1008 - 06 HSLAS GR 340 CL2	0,15 max	1,65 max	0,040	0,040
ASTM A214 (YS 270 max)	0,12 max	0,27 - 0,50	0,030	0,030

For further information, contact:

ArcelorMittal South Africa Limited, PO Box 2, Vanderbijlpark 1900. T +27 (0) 16 889 9111
<https://www.arcelormittalsa.com/Products.aspx>

Care has been taken to ensure that the information in this data sheet is accurate. ArcelorMittal South Africa Limited does not, however, assume responsibility for any inaccuracies or misinterpretations of this data. We are continuously engaged in product development and revised data sheets will be issued from time to time. Please ensure that you have the most recent issue. Effective date: March 2022

Mechanical properties

a. Tensile

Table 3. Tensile properties

Specification	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)	Gauge Length (mm)	Direction
ASTM A 1008 - 06 SS GR 275 TYPE 1	275 min	360 min	20 min	50	Longitudinal
ASTM A 1008 - 06 SS GR 230 TYPE 1	230 min	330 min	22 min	50	Longitudinal
ASTM A 1008 - 06 HSLAS GR 340 CL2	340 min	410 min	20 min	50	Longitudinal
ASTM A214 (YS 270 max)	270 max	390 max	30 min	50	Longitudinal

b. Bend test

If the carbon content has a value up to and including 0,15% the steel must pass a bend test where a specially prepared specimen is bent flat on itself. There should be no readily visible cracks along any bend and cracks at the sheared edges of the specimen are disregarded.

c. Hardness

1. At the time of shipment, the hardness of Commercial Quality will not exceed 65 Rockwell B.
2. The hardness range of ASTM A1008-'00 CS Type A (HRB 40-60) is 40 to 60 Rockwell B.
3. Since the SAE/AISI range specifies only chemical analyses, no hardness values are guaranteed.

d. Drawability

Steel deformation on pressed parts is assessed by means of the scribed square test as described in ASTM A568. Commercial Quality has limited drawability but should give satisfactory performance if the percentage increase in area of any drawn portion of an untrimmed part is 25 % or less. If it is more than 25%, a Drawing and Forming specification should be used. Refer to Data Sheet: Cold Rolled Steel Sheet for Drawing EN 10130 DC01 - DC06 (file reference B3.1). Since formability requirements vary it may be advisable in the case of new applications to seek ArcelorMittal South Africa's advice before ordering.

Ageing

Commercial steels, like most other steels, are susceptible to ageing or age hardening. Refer to Data Sheet: Cold Rolled Products (file reference B1).

Surface texture

Commercial steels are available in 'normal' surface texture as set out in Data Sheet: Cold Rolled Products (file reference B1). Other surface textures may be available on enquiry.

For further information, contact:

ArcelorMittal South Africa Limited, PO Box 2, Vanderbijlpark 1900. T +27 (0) 16 889 9111
<https://www.arcelormittalsa.com/Products.aspx>

Dimensions

Table 4. Available dimensions. Commercial Quality and SAE/AISI 1006 - 1012.

Thickness <i>t</i> (mm)	Width (mm)
$0,40^2 \leq t < 1,60$	800 - 1600
$1.60 \leq t \leq 2,00$	800 - 1500

Note:

1. *Thicknesses and Widths are available in increments in accordance with Price List 130. Width/thickness ratio limitations may apply.*
2. *Max width for 0.40mm thickness is 1225mm.*

Dimensional tolerances

Refer to Data Sheet: Cold Rolled Product Tolerances (file reference B1.1).

Coil inside diameter

The standard inside diameter is 508mm (610mm on enquiry).

Corrosion prevention

Refer to Data Sheet: Cold Rolled Products (file reference B1).

Certification

An analysis certificate is supplied.

Supply conditions

Cold rolled commercial steel sheet is supplied in terms of Price List 130 and ArcelorMittal South Africa's General Conditions of Sale.

For further information, contact:

ArcelorMittal South Africa Limited, PO Box 2, Vanderbijlpark 1900. T +27 (0) 16 889 9111
<https://www.arcelormittalsa.com/Products.aspx>

Care has been taken to ensure that the information in this data sheet is accurate. ArcelorMittal South Africa Limited does not, however, assume responsibility for any inaccuracies or misinterpretations of this data. We are continuously engaged in product development and revised data sheets will be issued from time to time. Please ensure that you have the most recent issue. **Effective date: March 2022**