RT ENVIRONMENTAL DECLARATION

22.13 (House 2000)

Valid until 09 May 2008
No. **4**

Cold rolled steel sheet and coils

Rautaruukki Oyj
Suolakivenkatu 1, FIN-00811 HELSINKI
Phone +358 20 5911
www.ruukki.com
info.metals@ruukki.com

ruukki
more with metals

1. PRODUCT SPECIFICATION

Cold-rolled steel sheets and coils made by Ruukki and used in the manufacture of construction products, such as precision tubes.

Product description

Cold-rolled steel sheets and coils are made at Ruukki's Hämeenlinna Works. The raw material used is hot-rolled steel coils manufactured at Ruukki's Raahe Steel Works.

Products are delivered as coils, and sheet and slit strips cut from coils. Product thicknesses range between 0.4 mm and 3.0 mm, other measurements and load weights as per the product programme.

Conversion factors

Density	Density of steel 7850 kg/m^3

Technical properties

Cold-rolled steel grades include formable steels, high-strength formable steels, weathering structural steels and hardened boron steels.
For more specific information on the manufacturing programme, the standards applied to steel grades and the properties of cold-rolled steels, visit our web site at www.ruukki.com.

RT-Environmental declaration is based on the national methodology following the basic principles stated in the ISO standard series 14040 and 14020. The method considers also the preliminary results achieved within ISO CD 21930. It is developed in cooperation with Confederation of Finnish Construction Industries RT, The Building Information Foundation RTS, VTT Technical Research Centre of Finland and companies of construction business.

2. ECO-PROFILE OF THE PRODUCT

The eco-profile covers the product's life cycle from the acquisition of raw materials to the factory gate

2.1 USE OF RESOURCES

Energy

Use of energy	MJ/kg
Consumption of non-renewable energy	15
Consumption of renewable energy	1.7
Consumption of energy in processes + transportation	16.7 (HHV)

*Transportation energy **	MJ/kg
Consumption of energy in transportation	Not specified

*Energy in processes **	MJ/kg
Electric energy resource consumption	Not specified
Fossil energy resource consumption	Not specified
Biotic energy resource consumption	Not specified
Total energy resource consumption in processes	Not specified

Feedstock energy of raw materials*	MJ/kg
Fossil feedstock energy in raw materials[1]	2.9
Biotic energy in raw materials	0
Total feedstock energy of raw materials	2.9

1So-called feedstock energy, which is included in energy usage.
**Voluntarily reported*

Raw materials

Consumption of raw materials[2]	g/kg
Non-renewable natural materials	322
Renewable natural materials	0
Hidden material flows[3]	642
Total consumption of raw materials	964

[2]Water is not included
[3]Inert material resulting from the excavation of raw materials

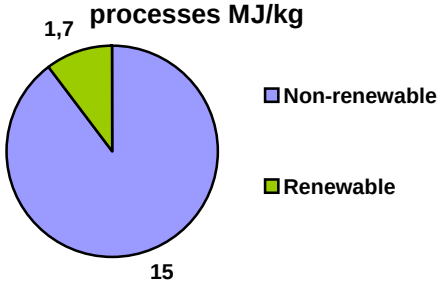
2.2 EMISSIONS

Emissions to air	g/kg
CO_2	850
CO	8.3
SO2	2.2
NO_x	0.4
CH_4	1.1
NMVOC	15 (also CH_4)
N_2O	$6.2*10^{-3}$
PM_{10}	Not defined
Heavy metals(Hg, Cd, Cr, Cu, Pb, Ni, V, Zn)	1.6*10-3
Dust	1.8
Other particles	Not defined

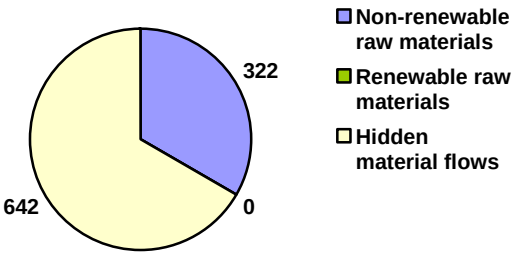
Emissions to water	g/kg
COD	$62*10^{-3}$
BOD	Not defined
P_{tot}	$4.5*10^{-3}$
N_{tot}	$44*10^{-3}$
Solids	1.3

Process waste	g/kg
Waste to dumping area	290
Hazardous waste	1.2

Energy in transport and processes MJ/kg



Renewability of raw materials g/kg



3. OTHER ENVIRONMENTAL ASPECTS

CONSTRUCTION

- Product transport Not defined

- Loss on site Not defined

- Indoor air emissions

- In the Emission Classification of Building Materials, uncoated steel is compared with M1 class materials. Further information: http://www.rts.fi/M1/.

RISKS

- A safety data sheet is not needed for steel, but one can be obtained upon request.

SERVICE LIFE

The product's service life depends to a large extent
1) on how it is processed further, with particular attention to protection against corrosion,
2) on the environmental conditions where the product is used, and
3) on how the product is serviced and maintained during its use.

The corrosion rates of steel are presented e.g. in the standard SFS-EN-ISO 12044-2.

SERVICE AND MAINTENANCE

- The product's service and maintenance depends on the usage of the product and the manufacturer's instructions.

FINAL DISPOSAL

Recycling

- Steel is valuable recycling material, and there is a well-functioning recycling network for steel. Steel is fully recyclable and it retains its properties when recycled.
- Steel can be reused, for example, in less demanding applications.
- All packaging materials can be recycled. Steel bands, corner covers and protective end steel sheets used in the packages can be recycled for steel manufacture. All wooden packaging material, paper or paperboard can be reused or burned.

Energy use

Not defined

- Fuel value

Treatment of waste

- Placement of waste; type of waste
  - Steel is fully recyclable and requires no waste treatment procedures. The metal scale and dust formed during steel processing can also be recycled.

ADDITIONAL INFORMATION

- The products' eco-profile calculations have an allowance for recycling of steel at a recycling rate of 90%, in accordance with the environmental declarations' methodology. The recycling of steel has been allowed for in the calculations by allocating part of the environmental effects of primary production to the recycled steel.
- The effect of recycling has been computed from the life cycle inventory data of the International Iron and Steel Institute, IISI, so that the compensation is the difference between a steel slab's primary and secondary production, including the yield of the recycling process.
- An assumption regarding secondary production is that 1.07 kg of recycled steel is needed for the production of 1 kg of steel.