

# Material Safety Data Sheet (MSDS) for Sub Bituminous Coal

## Section 1:

### 1.1 Product Identification:

Chemical family. Medium Range Mineral Coal

### 1.2 Producer / Emergency Contact

Yacimientos Carboníferos Río Turbio (YCRT)  
Av. YCF s/n Río Turbio – Province of Santa Cruz  
Phone: (02902) 421250

## CHEMICAL PRODUCT and IDENTIFICATION OF THE COMPANY.

Coal: Sub Bituminous A. Bituminous high in volatiles C (A.S.T.M D-388)  
Production of YCRT

## Section 2: COMPOSITION and INFORMATION ON CONSTITUENTS.

### 2.1 Chemical components of coal.

Coal: Fixed carbon semigrafítizado, volatile, sulfur, silica, moisture, ash.  
Number C.A.S. 1333-86-4

### 2.2 Properties.

Brand Name: YCRT Thin Thermal Coal Refined in Treatment Plant	
Property	Typical Value
Total Humidity	8-12 %
Volatile matter	42 %
Ash	14 % ± 2 %
Sulfur fuel	0,5 a 0,8 %
Index Hardgrove (HGI)	38

Upper Calorific Power Wet Base (GCV M/B)	5714 Kcal/Kg
Dry Heat Superior Base Power (GCV D/B)	6727 Kcal/Kg
Size	Less than 20 mm

<b>Brand Name: YCRT Coarse Thick Thermal Coal</b>	
<b>Property</b>	<b>Typical Value</b>
Total Humidity	9-14 %
Volatile matter	37 %
Ash	28 %
Sulfur fuel	0,5% a 0,8%
Index Hardgrove (HGI)	40
Upper Calorific Power Wet Base (GCV M/B)	5.584 Kcal/Kg
Dry Heat Superior Base Power ( GCV D/B )	6144 Kcal/Kg
Size	0-50 mm

The composition% by weight of the coal, can vary depending on the different reservoirs of exploitation.

### **Section 3: RISK IDENTIFICATION**

**3.1 PHYSICAL RISKS:** Black powder, fuel that can release Cox SOx, or methane (CH4) during its combustion. Difficult to extinguish when combustion.

#### **3.2 EFFECTS ON HEALTH**

**Inhalation:** Avoid inhalation of coal dust.

**Acute Effects:** May cause irritation to the respiratory system due to inhalation of high levels of dust content, above the occupational exposure limits of 8 hours.

**Chronic Effects:** Prolonged exposure for years can cause damage to the respiratory system, giving rise to pathologies such as coal worker pneumoconiosis or silicosis.

**Unintended Intake:** Relatively does not cause harm.

**Skin Absorption:** It is very strange that it happens.

**Eye Contact:** The contact of coal dust with the eyes can cause irritation.

**Skin Contact:** Prolonged or repeated contact with the skin may cause irritation due to the abrasive ability of the carbon.

**Carcinogenicity:** Carbon contains small amounts of silica (Si) in the form of quartz.

The International Agency for Research on Cancer (IARC) has classified silica (quartz) within Group 1 as a carcinogen for humans.

However, the IARC has also concluded that there is insufficient evidence in humans and experimental animals to determine the carcinogenicity of coal dust and that this material can not be classified as to its carcinogenicity to humans.

## **Section 4: THE RISK OF FIRE AND EXPLOSION.**

### **4.1 FLAMMABILITY.**

Flashpoint: Not Applicable (Solid). Volatiles in closed environments with air currents can produce aerial "fires" during summer and transport.

Flammability Limits: LEL: Not Applicable (Solid) UEL: Not Applicable (Solid)

4.2 NFPA: Rating Health. 0 Flammability - 0 Reactivity.

4.3 Extinguishing Agents: Water Spray (Fog), Chemical foam, CO<sub>2</sub>

4.4 Fire & Explosion Hazard: Solid Fuel;

Slightly explosive when exposed to open flame. Avoid generating dust to minimize the risk of explosion. Eliminate sources of ignition in dust / build-up areas to avoid the potential risk of explosion.

4.5 Combustion Risk: It can produce CO<sub>x</sub>, SO<sub>x</sub>, and Methane (CH<sub>4</sub>) as waste / gaseous effluent from its devolatilization.

4.6 Fire Fighting Equipment: Use autonomous breathing equipment (SCBA) and integral personal protection equipment.

## **Section 5: Measures in Case of Accidental Rolling.**

5.1 Apply cleaning procedure of the area where the overturning of the material occurred.

5.2 Implement measures to protect personnel in the area where the rollover occurred. Limit access to the area.

5.3 Environmental Precautions-Spray lightly with spray-type water to avoid generation / dispersion of dust and sweep in a suitable container.

Use adequate respiratory protection for dust generation cases above the occupational exposure limits. See section 10.

Coal is not classified as a hazardous waste. Dispose of the overturned material in an approved landfill or incinerate in accordance with national and local regulations.

## **Section 6: Transportation and Storage.**

6.1 Transportation and Storage Precautions.

6.2 Safety and Hygiene Practices.

Prevent product exposure to high temperatures and open flame as well as powerful oxidizing materials.

Avoid the generation of coal dust. Carefully wash the exposed areas of the body as well as the clothing used during the day.

## **Section 7:**

7.1 Inhalation

7.2 Skin

7.3 Ingestion

7.4 Eyes

## **Section 8:**

### **First aid.**

If there is irritation or respiratory discomfort, move the affected person to an area with fresh air.

Not dangerous when in contact with the skin. Wash exposed skin for hygienic purposes.

It is not dangerous by accidental intake. Avoid ingestion, can cause irritability of the digestive system.

If there is eye irritation or discomfort, rinse the eyes slightly with water to remove dust particles (foreign bodies).

## Stability and Reactivity

8.1 Chemical Stability. It is particularly stable

8.2 Risky Polymerization. It will not happen

8.3 Risky Decomposition in other Products. It releases carbon monoxide, monoxide and sulfur dioxide and methane in combustion processes.

8.4 Incompatibility. With strong oxidants, it can generate fire.

8.5 Conditions to Avoid. Contact with strong oxidants or important heat inputs. Do not expose to open flame or high temperatures. Minimum AUTOIGNITION temperature, 70 ° C.

## Section 9: Physical and Chemical Properties.

9.1 Appearance. Granular solid or larger particles.

9.2 Odor It does not smell.

9.3 Solubility. It is not soluble.

9.4 Vapor Voltage <0.1 mm.Hg.

9.5 Specific weight (H<sub>2</sub>O = 1.0) 1.3.

9.6 pH. It does not apply to solids, but in neglected exposure to the weather, and in the presence of fog, snow or rainfall, generates long-term, acid drainages.

## Section 10: Controls on the Exposure and Protection of Personnel

10.1 Respiratory Protection: Not required if dust levels remain below the suggested limits for occupational exposure. For levels above the indicated occupational exposure limits, use an appropriate self-contained breathing apparatus approved by NIOSH.

10.2 Personal Protective Equipment (PPE):

Gloves When necessary

Protective clothing. Suitable clothing for work in confined areas and wash daily

Facial Protection When necessary

10.3 Occupational Exposure Limits.

Chemical compound	OSHA – PEL TWA	ACGIH – TLV TWA	NIOSH –REL
Coal dust (breathable with < 5% SiO <sub>2</sub> (Silica))	o 2.4 mg/m <sup>3</sup>	0.9 mg/m <sup>3</sup>	Not established
Coal dust (breathable with > 5% SiO <sub>2</sub> (Silica))	10 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	Not established

10.4 Engineering Controls: Ensure sufficient ventilation to keep the accepted contamination levels under control.

## **Section 11: Toxicological Information**

11.1 Exhibition Routes.

11.2 Aggravated Medical Conditions.

11.3 Carcinogenicity by Silica.

### **Inhalation**

It is not expected; It can aggravate the situation of the person involved if he suffers from preexisting respiratory conditions such as bronchitis or asthma due to the nature of annoying dust.

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## **Section 12: International Information**

The OSHA risk communication regulations mention that some components of coal (1) are considered hazardous and should be included in the risk communication program of the producer to customers and users.

Classification of Risk according to (United Nations Committee of Experts on the Transport of Dangerous Goods) UN # 1361 Class 4.2

NOTE 1: Coal, Sub-Bituminous, flammable solid.

### **NIOSH (The National Institute for Occupational Safety and Health)**

TWA 1 mg / m<sup>3</sup> [determined according to the MSHA method (CPSU)]

TWA 0.9 mg / m<sup>3</sup> [determined according to the ISO / CEN / ACGIH method]

TWA = Time Weighted Average - Exposure time over a period of time (usually 8 hours)

## **Section 13: GENERAL INFORMATION**

The information provided in this document is based on the data that Yacimientos Carboníferos Río Turbio considers necessary.

No warranty is expressed or implied. The information is provided only for information and consideration of customers and users.

YCRT does not assume any responsibility for the use of the material made by its Clients or users, either directly or structures / people dependent on them.

### **OCCUPATIONAL TOXICOLOGY - FOR EMERGENCY CASES TO CONSULT:**

POSADAS HOSPITAL OF THE PROVINCE OF BUENOS AIRES

## **INTOXICATIONS CONSULTATIONS**

National toll free line: 0 800 333 0160

Telephones: (11) 4654-6648 / (11) 4658-7777

## **GUARDIA 24 HOURS Adults and Children**

Location: Sector D 1st Floor (First Floor)