



MAL-SPED Sp. z o.o.

BROWN COAL DUST

To start with...

Nowadays, in the XXI century when the prices of gas and oil have been growing rapidly over the years, there is a need to search for solutions which will reduce the costs incurred for the power energy, help us save money and enjoy financial satisfaction. Saving is definitely a challenge but there are ways to achieve this target and live a better life. If we save on energy we can spend that extra money on something else we could not afford before.



For this reason we would like to offer you a perfect alternative to the traditional fuel. The properties of that product prove its high quality and guarantee satisfaction. The brown coal dust, the most modern energy source, fine-grain fuel, is the solution which will definitely meet your expectations.

Mal-Sped – services of the highest quality

We represent the stable position on the market, full customer satisfaction and the services of the highest quality. We are a supplier of energy sources such as: heavy fuel oil (mazout), anthracite, hard coal and the brown coal dust we are now offering.



This more and more popular energy carrier comes from the deposits of brown coal found in Sokolov Coal Basin in Czech Republic. It ensures high quality, competitive prices and full satisfaction. We treat every client individually and guarantee successful cooperation for many years.

We hope that you will be also willing to start doing business with us as we do our best to deliver goods that are verified and simply the best.

Quality of brown coal dust



The coal dust is the energy carrier, which can be used in boilers. It has an extremely high heating value, as well as low content of water, sulphur and ash. This fine-grain fuel has a perfect ignition capability, high reactivity, and ideal combustion properties. Good fluidity and easy fluidisation of brown coal dust allow for comfortable use, which is similar to oil.

Production of brown coal dust



The brown coal dust is produced from the raw brown coal, which undergoes different processes, starting with crushing, drying, through filtering and ending with grinding. The acquired product ensures high quality, improves heating standards and protect natural environment.

In such circumstances is there a point in hesitating when we are offered a significantly cheaper alternative which usage provides a great number of advantages? Everyone should pay attention to this solution, which helps to enjoy life and save money. The costs of energy do not have to be so big if we invest in the materials with high quality properties.

PRODUCT DATA SHEET

1. NAME OF THE PRODUCT AND PRODUCER

Product:

Name: fine-grain dust (dried brown coal dust)

Product no: 49E

Substance ID: 1361

UN number: 40/1361

Producer:

Company's registered name: Sokolovská uhelná, a.s. (English: joint stock company)

Address: Staré náměstí 69, 356 00 Sokolov, Czech Republic

E-mail: info@suas.cz

website: www.suas.cz

2. COMPOSITION DATA

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3. HAZARDOUS NATURE

Dangerous goods class: (loose material).

Self-heating organic substance – 4.2

Number: (hazard identification number – the KEMLER code)

Flammable solid – 40

Letter of hazardous substance:

1c)

Substance ID:

1361 (coal dust)

UN number:

40/1361

4. FIRST AID

Inhalation: After inhaling the coal dust does not tend to settle in lungs or damage respiratory system. After leaving the working area the inhaled dust will be coughed up.

Contact with skin: The sensitive skin can become dry after contact with coal dust. In order to remove dust use standard cleaning substances and to prevent skin from drying apply protective creams.

Contact with eyes: In case of contact with eyes, rinse immediately with plenty of water or liquid such as e.g. OPHTAL . If the eyes are irritated, contact a doctor.

Swallowing: Drink something or make yourself vomit. If you still feel sick, contact a doctor.

5. FIRE PROTECTION

The substance is self-flammable so it can be inflamed after liquid fuel from coal reacts with atmospheric oxygen at the temperature above 110°C.

The substance can cause the explosion in the following conditions:

- there is a closed explosion area,
- the concentration of dust in the air is $c = 400 \text{ g/m}^3$,
- the concentration of oxygen exceeds 10%,
- the energy required for initiation of explosion should be respectively big.

Coal dust fire in a container:

- Cool fire with a stream of water
- If a container cannot be tightly closed, extinguish fire with foam. Limit the up flow of dust if possible.

Coal dust fire outside a container:

- Extinguish small fire with soil. Limit the up flow of dust.
- Extinguish fire with water with a use of humidifier. Use foam.

6. ACTIONS TO BE UNDERTAKEN IN THE CASE OF ROAD ACCIDENT OR TANK SHELL DAMAGE

Follow the instructions below in the case of an accident:

- The driver should make sure that the accident did not cause a leak in the tank (with a use of pressure measuring instrument indicating the pressure of inert gas in the tank).
- If the inert gas is not released, the cargo is not hazardous and the road accidents should be dealt with in a standard way.
- If there is a need to empty a tank or handle it in invasive way, it is necessary to contact the safety personnel responsible for dealing with such situations, so they can decide on further actions.

Actions to be undertaken if the tank's shell is damaged:

- If the tank's shell is torn and the brown coal dust is released, protect it from the contact with all possible sources that may cause explosion and from the heat source.
- In the case when there is a slight leakage in the tank's shell, prevent further release of dust from the tank.
- In the case of small leak ask the fire brigade to use a tank with humidifier and foam in order to limit the dustiness.
- When undertaking the actions limit the up flow of the released coal dust.
- Contact immediately the safety personnel responsible for dealing with such situations, so they can decide on further actions.

Emergency phone numbers:

Fire brigade: 150

Police: 158

Cargo sender: Sokolovská uhelná, a.s., Sokolov

Divize Tlaková plynarna, sekce sušárna a výroba briket

(Department of Gasworks, Section of Briquette Drying and Production)

0168/464 415, 0168/464 416

7. PROTECTION AND STORAGE

Recommended procedures and protections:

- Follow the industrial health and safety regulations.

Prohibited substances and procedures:

- Remove all possible sources that may cause the explosion and heat sources.

Storage:

- Store in the area neutralized with nitrogen under subatmospheric pressure of 30 kPa.
- Store outside the area of interaction with heat sources.

8. EXPOSURE SOURCES AND CONTROL METHODS

Hands protection:

- Work gloves

Eye and face protection:

- Protective goggles

Skin protection:

- Work clothes

9. PHYSICAL PROPERTIES

Substance properties:

Flammable solid, fine-grain structure acquired during the process of coal handling.

Granularity:	0 – 0.50	mm
<i>Average qualitative values:</i>		
Water W_t^r	5.50	%
Ash A^d	15.00	%
Heating value Q_i^r	23.75	MJ/kg
Sulphur S_t^r	0.70	%
Average sulphation rate S_m^r	0.29	g/MJ
Heat of combustion Q_s^{daf}	31.35	MJ/kg
Volatile flammable gases V^{daf}	51.00	%
<i>Maximal permissible content:</i>		
Minus mesh	-	
Residues on mesh	1.00	%
Dust	-	
Visible dead rock	-	
<u>Coal properties:</u>		
<i>Basic analysis of the flammable substance:</i>		
H^{daf}	5.68	%
C^{daf}	74.01	%
S^{daf}	0.53	%
N^{daf}	1.14	%
O^{daf}	18.64	%
<i>Radioactivity</i>		
^{226}Ra	57.00	Bq/kg
^{232}Th	18.00	Bq/kg
^{40}K	20.00	Bq/kg
Equivalent relative radioactivity S_{SO4}^d	81.0	Bq/kg

<i>Form of sulphur</i>		
Total sulphur S_t^d	0.51	%
Pyritic sulphur S_p^d	0.04	%
Organic sulphur S_o^d	0.45	%
Sulphate sulphur $S_{SO_4}^d$	0.02	%

Susceptibility to grinding:

Susceptibility to grinding with a use of VTI Gr_{VTI} method	-	
Susceptibility to grinding with a use of VÚK Gr_{VUK} method	-	

Fire hazard:

Temperature of ignition caused by a spark $t_{vzpl.}$	292.00	°C
Temperature of ignition caused by temperature $t_{vzn.}$	590.00	°C
Temperature of ignition caused by heat t_{zhn}	152.00	°C

Content of trace elements:

Sb	2.10	mg/kg s.m
As	3.90	mg/kg s.m
Be	3.25	mg/kg s.m
Cr	21.10	mg/kg s.m
Co	6.80	mg/kg s.m
Cd	0.48	mg/kg s.m
Cu	65.50	mg/kg s.m
Ni	13.60	mg/kg s.m
Pb	7.37	mg/kg s.m
Hg	0.29	mg/kg s.m
Se	2.50	mg/kg s.m
Ag	1.10	mg/kg s.m
V	76.00	mg/kg s.m
Zn	49.20	mg/kg s.m
Sn	5.50	mg/kg s.m
Ti	5.40	mg/kg s.m
Ba	522.00	mg/kg s.m
Mn	64.00	mg/kg s.m
Fe	5100.00	mg/kg s.m

Low temperature carbonisation test:

Tar T_{sK}^d	14.88	%
Tar T_{sK}^{def}	16.83	%
Semi-coke (sK) ^d	65.16	%
Pyrogenic water W_{sK}^d	8.17	%
Pyrogenic water W_{sK}^{daf}	9.24	%
Gas G_{sK}^d	11.79	%
Gas G_{sK}^{daf}	13.36	%

Bitumen:

Bitumen B^d	2.48	%
Bitumen B^{daf}	2.81	%

Fluorine and chlorine:

F	0.0160	%
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Cl	0.0281	%
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Ash properties:

Chemical constitution

SiO ₂	43.70	%
Al ₂ O ₃	32.90	%
Fe ₂ O ₃	5.31	%
MnO	0.05	%
P ₂ O ₅	0.47	%
SO ₃	2.69	%
Na ₂ O	2.09	%
K ₂ O	0.46	%
TiO ₂	4.47	%
CaO	4.76	%
MgO	1.39	%

Fusibility:

Softening temperature T _A	1350	°C
Melting temperature T _B	1370	°C
Flow temperature T _C	1415	°C

** oxidation atmosphere

10. STABILITY AND REACTIVITY

Minimum energy of ignition caused by temperature:

0.25 J

Minimum temperature of ignition caused by temperature:

t _u min – settled dust	170°C
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τ ₁ - interaction time	250 s
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minimum temperature of dust floating around in the air	530°C
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τ ₁ - interaction time	450 ms
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The substance settled on the surface or floating around in the air is easily flammable.

It is a very good fire accelerator.

It is explosive.

It is highly susceptible to electrostatic spark ignition.

The pressure of explosions is very high.

The maximum permissible amount of oxygen O₂ is 10% of oxygen volume with concentration 160 g/m³ (neutralizing agent N₂).

11. TOXICITY

Substance is not toxic.

12. ECOLOGY

Mobility:

- Due to fine-grain structure of the substance it behaves similarly to liquid, it is hard to humidify, and it is lighter than water.
- The substance does not pose a threat to ecology but when it leaks it highly pollutes the air.

13. CONDITIONS DURING DISPOSAL

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14. TRANSPORT

Protection:

- The tank with the hazardous substance is subject to nitrogen inertion under excess pressure of 30 kPa.

Transport method:

- FFB – tank trailer – tipper truck, aluminium pressure container, aluminium frame, 10 tons weight on fifth wheel coupling, axial aggregate 3x9 tons, construction consistent with GGVS/ADR regulations.

15. INFORMATION ON LEGAL REGULATIONS

All applicable regulations in force.

16. OTHER INFORMATION

Looking into the future

The demand for energy is constantly growing. Can we be afraid that one source of energy may not be enough? Definitely not, if we mean the brown coal dust. Its resources will be used for a very long time due to huge reserves of this energy carrier. If you decide to choose this source of energy you will not have to be afraid a sudden lack of dust, or problems with its purchasing.

Moreover, it is worth emphasizing that the prices are very competitive. Due to the growing demand for oil and gas the suppliers can highly increase the prices.

The coal dust we have a pleasure to offer you, will make you feel satisfied due to its quality and attractive price.



Intelligence and functionality



The brown coal dust has many advantageous properties, which meet the expectation of the buyers and let them enjoy the saved money.

Due to the applied solutions there are many ways of combining the brown coal dust with the additional fuel. It all ensures flexibility and independence which is so important nowadays.

Transport

The brown coal dust is transported in a highly specialist tanks (siloses).

Reloading of brown coal dust into the stationary containers is done pneumatically by means of compressed air in closed systems, which does not cause any pollution.





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