BIOMICROGEL®

MANUAL

Reagent for oil extraction

Biomicrogel® BMG-C4

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The manual is developed by “SPC BMG” LLC.

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1. General information

1.1 Reagent for oil extraction Biomicrogel® BMG-C4 (hereinafter - BMG-C4) is produced according to the approved technical conditions. It is a beigeor yellow-brown powder.

1.2 BMG-C4 is designed to increase the extraction of various vegetable oils during their production at the stages of settling and centrifugation. The characteristics of BMG-C4 are presented in Table 1.

Table 1 - Physical Properties BMG-C4.

Aggregate state	Fine-dispersed powder with inclusions of particles*
Color	Varies from beige to yellow-brown, it is allowed the inclusions of white colour*
Bulk density	0.44 ÷ 0.70 g/cm^3
pH value (3% water solution)	1.25 ÷ 1.50

* - in case of a significant temperature drop during transportation and/or storage, BMG-C4 may stick together and darken, what does not affect the performance of the product.

1.3 BMG-C4 is non-toxic, non-flammable, does not produce toxic compounds with other substances, does not have cumulative properties.

1.4 BMG-C4 does not cause negative environmental effect.

1.5 Use a sealed container to collect wastes. Label it and utilize as Class 5 Hazardous Waste. Disposable or damaged containers utilize as household waste.

2. Safe handling measures

2.1 IMPORTANT! The following personal protective equipment must be worn when working with BMG-C4:

GOGGLES

RESPIRATOR

RUBBER GLOVES

WARNING

WORKING CLOTHES

PROTECTIVE BOOTS

H302+H312+H332	**Harmful if swallowed, in contact with skin or if inhaled.**
P260	**Do not breathe dust.**
P264	**Wash hands thoroughly after handling.**
P280	**Wear protective gloves /protective clothing /eye protection / face protection**

2.2 If the workwear is dirty, it must be washed with a laundry detergent.

2.3 BMG-C4 is safe when used correctly for its designed purpose.

2.4 Production and laboratory premises where BMG-C4 is used must be equipped with exhaust and supply ventilation.

2.5 BMG-C4 in dry form, when inhaled, causes coughing, sore throat, sneezing. When exposed to the skin – mild skin irritation, dryness. In case of contact with eyes - eye irritation, redness of the mucous membrane of the eyes, lacrimation. If swallowed - sickness, abdominal pain.

2.6 In case of contact with eyes or skin, rinse thoroughly with plenty of water, in case of contact with skin, rinse with running water, in case of contact with the stomach (by oral route), give plenty of liquid to drink, activated charcoal, and salt laxative Seek medical attention if you feel unwell.

3. Terms, definitions and abbreviations

DCO - diluted crude oil;

CST - Contentious Settling Tank;

COT - crude oil tank;

COT pump - pump supplying DCO from the COT-tank into the pipeline;

Sludge - water-oil suspension;

SPIN-test - test for determining Sludge content in DCO sample space by centrifugation method.

4. Method of application

4.1 The working solution of BMG-C4 is prepared in a tank equipped with an overhead stirrer at a stirring speed of 100 rpm by dissolving an appropriate amount of dry BMG-C4 powder in tap water.

4.2 Dissolving time varies from 10 to 30 minutes. Dissolve BMG-C4 for 20-30 minutes or until it is completely dissolved.

4.3 To prepare a working solution with 3% concentration - take 30 kg of BMG-C4 dry powder, pour it into a mixing tank and add 970 oftap water.

4.4 BMG-C4 should be dosed into the DCO flow before the CST stage.

4.5 BMG-C4 injection point should be placed after the COT pump that supplies DCO from the COT.

4.6 Conduct a DCO SPIN test to determine the content of non-oil sludge in the flow.

4.7 BMG-C4 dosage is calculated based on the combined volume of water, non-oil-solid and emulsion, or volume of sludge minus oil volume. The optimal dosage of BMG-C4 is from 0.3 to 1.0 g of BMG-C4 dry powder per 1 litre of non-oil sludge in DCO.

4.8 The volume of BMG-C4 is calculated based on the actual capacity of COT pump and the amount of sludge in DCO flow. The volume of the working solution of BMG-C4 is from 10 to 33 ml per 1 litre of non-oil sludge in DCO.

4.9 A diaphragm, plunger or screw type dosing pump with capacity 0.2 – 2 m^3/h is required to dose the working solution. The working pressure of the pump should be 1 bar higher than the pressure in the system after the COT pump.

4.10 A flow meter controlling BMG-C4 working solution consumption should be installed after the dosing pump.

IMPORTANT!
Ensure the synchronous operation of the dosing pump and the COT pump. Both pumps should start and stop synchronically.

5. Manufacturer's warranty

5.1 The manufacturer guarantees the quality of the product in compliance with these instructions, storage and transportation requirements are met.

5.2 The guaranteed shelf life of the packaged product is 24 months as from the date of production.

6. Transportation and storage

6.1 BMG-C4 is transported in its original package by rail, road, sea, river, and air transport in accordance with the requirements applicable to this type of transport.

6.2 BMG-C4 is stored in the manufacturer's package in sheltered storage facilities protected from direct sunlight at a relative humidity of no more than 70% at a temperature not exceeding 37°C in conditions that exclude dust penetration and precipitation.

6.3 Inside the package there are substances that can cause skin irritation.

6.4 Storage near open flame is not allowed.

6.5 All protective packaging should be kept intact.