



BIOMICROGEL[®]

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PRODUCT INFORMATION

BMG PDS-3000.2P

Preparation and dosing station

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1. GENERAL INFORMATION

This document contains technical information on the station for preparation and dosing of oil extraction additive **BMG-C4**. The nominal capacity of the station is 6000 l/h. These units are designed for use in palm oil plants with a processing capacity of 90 to 120 FFB t/h (Fresh Fruit Bunches).

This technical description is intended for use as part of feasibility studies, tender, design and engineering documentation.

SPC BioMicroGel LLC reserves the right to make changes and additions to this equipment, its design and implementation that do not affect the technical and operational characteristics of the product, or improve them.

2. TECHNICAL SPECIFICATIONS

MODEL	BMG PDS-3000.2P
Dry reagent throughput	60 kg/h
Working solution throughput	6000 l/h, with dissolution time of 30 minutes
Motor power of the metering pump	0.37–1.1 kW
pH value for 3% water solution	1.3–1.5
Dosing pump performance	0.99 m ³ /h to 1.65 m ³ /h
Dosing pump pressure	0.3–0.4MPa
Working volume of the container for preparation and dosing of BMG-C4 solution	3.0 m ³





Number of containers used for preparation and dosing of BMG-C4 working solution	2 pcs.
Type of stirrer	Double deck paddle mixer
Stirrer rotation speed	100 rpm
Overall dimensions	3400 mm (L) x 2800 mm (W) x 2500mm (H)

3. PRINCIPLE OF OPERATION

3.1. In order to prepare 3 m³ of working solution of oil extraction additive BioMicrogel® **BMG-C4** in Manual mode, the operator needs to:

- Set the Operating mode toggle switch on the control box of BMG PDS-3000.2P to Manual.
- Open a tap for service water supply to one of the two plastic tanks.
- Close the purified service water supply tap after filling 3 m³ or when the upper water level sensor triggers.
- Switch on the stirrer in Manual mode at a speed of 100 rpm.
- Add the required volume of **BMG-C4** dry powder manually to the container (see **BMG-C4** usage instructions).
- Stir the solution for 20 minutes or until complete dissolution of dry reagent (may be accompanied by foaming).
- Open all valves to supply working solution to the dosing point.
- Repeat the above procedure for the second tank.
- Set the required number of pulses on the metering pump or the required frequency on the variable-frequency drive to achieve the desired working solution feed rate.

- Set the Operating mode toggle switch on the control box of BMG PDS-3000.2P to Automatic.
- Set the dosing pump operation mode toggle switch on the control box to Automatic.
- Set the stirrer mode toggle switch on the control box to Automatic.

3.2. In order to prepare 3 m³ of working solution of oil extraction additive BioMicrogel® BMG-C4 in Automatic mode, the operator needs to:

- Set the Operating mode toggle switch on the control box of BMG PDS-3000.2P to Automatic.
- Set the dosing pump operating mode toggle switch on the control box to Automatic.
- Set the stirrer mode toggle switch on the control box to Automatic.
- Open the purified service water supply tap to one of the two plastic tanks.
- When the lower level sensor in the tank being filled is closed, the stirring device will automatically turn on at a speed of 100 rpm.
- Close the purified water supply tap after filling 3 m³ or when the upper level sensor triggers.
- Add the required volume of BMG-C4 dry powder manually to the container (see BMG-C4 usage instructions).
- Stir the solution for 20 minutes or until complete dissolution of dry reagent.
- Open all valves to supply working solution to the dosing point.
- Repeat the above procedure for the second tank.
- Set the required number of pulses on the metering pump or the required frequency on the variable-frequency drive to achieve the desired working solution feed rate.

3.3. Algorithm of operation in automatic mode.

- | 3.3.1. When the preparation and dosing station BMG PDS-3000.2P is switched to Automatic mode, the ball valve with automatic actuator is opened, and the working solution mixed in Tank 1 is ready for dosing.
- | 3.3.2. Upon receiving a signal from COT-Pump contactor switch, the metering pump is turned on.
- | 3.3.3. When COT-Pump switch is open, the metering pump stops until the COT-Pump switch is triggered again.
- | 3.3.4. After the entire volume of the **BMG-C4** working solution has been pumped and the lower level sensor in Tank 1 opens, the ball valve with automatic actuator will close and the ball valve with automatic actuator after Tank 2 will open.
- | 3.3.5. When the lower level sensor in Tank 1 is opened, the stirring device will be turned off and the control lamp on the control box will light up, signaling the operator to start mixing new working solution in Tank 1.
- | 3.3.6. After the entire volume of the **BMG-C4** working solution has been pumped and the lower level sensor in Tank 2 opens, the automatic ball valve will close and the automatic ball valve will open after Tank 1.
- | 3.3.7. When the lower level sensor in Tank 2 is opened, the stirring device will turn off and the control lamp on the control box will light up, signaling the operator to start mixing new working solution in Tank 2.
- | 3.3.8. If the working solution in Tank 2 is pumped out, the ball valve of Tank 2 is closed, and new working solution is not prepared in Tank 1 (the upper level indicator in Tank 1 is not closed), the metering pump will turn off and the Emergency indicator lamp on control box will light up.

4. ANNEX

Annex 1 – Process flow diagram for BMG PDS-3000.2P

