EMMERICH RESEARCH CENTER

Data Sheet

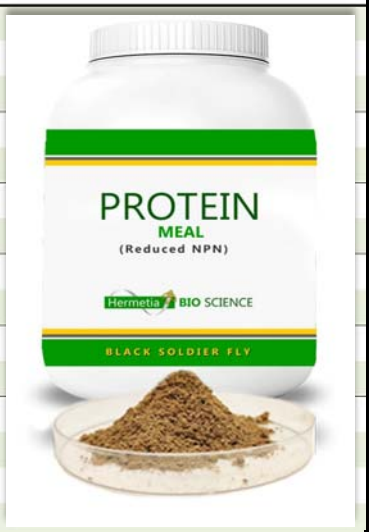
# Protein Meal (R2)

(Black Soldier Fly)

## Proximate Analysis

| No. | Parameter | Result | Unit | Limit of Detection | Method |
|---|---|---|---|---|---|
| 1 | Protein Content | 47.75 | % | - | 18-8-31/MU/SMM - SIG (Kjeltec) |
| 2 | Ash Content | 19.63 | % | - | SNI 01-2891-1992, 6.1 |
| 3 | Calorie from fat | 112.50 | kcal/100 g | - | Calculation |
| 4 | Total Fat Content | 12.50 | % | - | 18-8-5/MU/SMM-SIG point 3.2.2 (Weibull) |
| 5 | Moisture Content | 6.95 | % | - | SNI 01-2891 - 1992, point 5.1 |
| 6 | Total Calorie | 356.18 | kcal/100 g | - | Calculation |
| 7 | Carbohydrate | 13.17 | % | - | 18-8-9 /MU/SMM-SIG |

| | | | |
|---|---|---|---|
| 1. | Company | : | Hermetia Bio Science |
| 2. | Project No. | : | 18013 |
| 3. | Document No. | : | SPEC 18013-P3-G-0000-DS-PMODR212001A_A |
| 4. | Laboratory | : | Saraswanti Indo Genetech / Emmerich Research Centre |
| 5. | Reference No. | : | SIG.LHP.IX.2021.119190 / SIG result various product |
| 6. | Sample Number | : | 2708.PMD.R5b.12.2 |
| 7. | Sample Name | : | Fresh Larvae Wet Mass Day 12 WB |
| | | | Protein Meal 2x Decanter Run |
| 8. | Date Received | : | 14 September 2021 |
| 9. | Date of Analysis | : | 15 - 23 September 2021 |
| 10. | Type of Analysis | : | See Above |




**Comments:**

Diet of the Black Soldier Fly Larvae is based on 100% organice waste streams, free of any meat sources or processed food.

| Rev No. | Date | Revision Description | Prepared by | Lab. | ESC | OBU | HBS |
|---|---|---|---|---|---|---|---|
| A | 24-Sep-21 | Issued for Information | SIG | ERC | ES | SY | EA |
| | | | | | | | |
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# Protein Meal (R2)

(Black Soldier Fly)

**Amino Profile**

| No. | Parameter | Result | Unit | Limit of Detection | Method |
|---|---|---|---|---|---|
| 1 | L-Serine | 22,888.61 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 2 | L-Glutamic acid | 47,138.34 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 3 | L-Phenylalanine | 20,791.50 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 4 | L-Isoleucine | 30,529.17 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 5 | L-Valine | 25,790.20 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 6 | L-Alanine | 48,670.40 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 7 | L-Arginine | 35,052.01 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 8 | Glycine | 22,687.63 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 9 | L-Lysine | Not Measured | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 10 | L-Aspartic Acid | 36,285.04 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 11 | L-Leucine | 22,839.19 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 12 | L-Tyrosine | 24,929.04 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 13 | L-Proline | 35,174.87 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 14 | L-Threonine | 39,645.99 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 15 | L-Histidine | 23,109.26 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 16 | L-Cystine | 14,341.44 | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 17 | L-Methionine | Not Measured | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 18 | L-Tryptophan | Not Measured | mg / kg | - | 18-5-17/MU/SMM-SIG (UPLC) |
| 19 | Total Amino Essential | 196,324.83 | mg / kg | - | |
| 20 | Total Amino Non-Essential | 253,547.86 | mg / kg | - | |
| 21 | Total Amino Acid | 449,872.69 | mg / kg | - | |
| 22 | Total Amino Acid | 44.99 | % | - | |
| 23 | Crude Protein | 47.75 | % | - | |

| | | | |
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| 2. | Project No. | : | 18013 |
| 3. | Document No. | : | SPEC 18013-P3-G-0000-DS-PMODR212001A_A |
| 4. | Laboratory | : | Saraswanti Indo Genetech / Emmerich Research Centre |
| 5. | Reference No. | : | SIG.LHP.IX.2021.119190 / SIG result various product |
| 6. | Sample Number | : | 2708.PMD.R5b.12.2 |
| 7. | Sample Name | : | Fresh Larvae Wet Mass Day 12 WB |
| | | | Protein Meal 2x Decanter Run |
| 8. | Date Received | : | 14 September 2021 |
| 9. | Date of Analysis | : | 15 - 23 September 2021 |
| 10. | Type of Analysis | : | See Above |


**Comments:**

Diet of the Black Soldier Fly Larvae is based on 100% organice waste streams, free of any meat sources or processed food.

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| A | 24-Sep-21 | Issued for Information | SIG | ERC | ES | DM | EA |
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# Data Sheet

## Protein Meal (R2)

(Black Soldier Fly)

### Non-Protein Nitrogen (NPN)

| No. | Parameter | Result | Unit | Limit of Detection | Method |
|---|---|---|---|---|---|
| 1 | Total Amino Acid | 44.99 | % | - | |
| 2 | Crude Protein | 47.75 | % | - | |
| 3 | NPN | 5.79 | % | - | |

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| 3. | Document No. | : | SPEC 18013-P3-G-0000-DS-PMODR212001A_A |
| 4. | Laboratory | : | Saraswanti Indo Genetech / Emmerich Research Centre |
| 5. | Reference No. | : | SIG.LHP.IX.2021.119190 / SIG result various product |
| 6. | Sample Number | : | 2708.PMD.R5b.12.2 |
| 7. | Sample Name | : | Fresh Larvae Wet Mass Day 12 WB |
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| 8. | Date Received | : | 14 September 2021 |
| 9. | Date of Analysis | : | 15 - 23 September 2021 |
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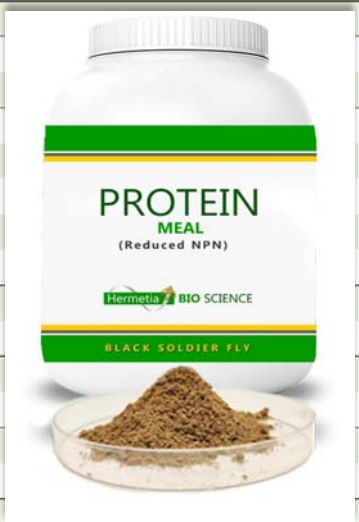


**Comments:**

1 Diet of the Black Soldier Fly Larvae is based on 100% organice waste streams, free of any meat sources or processed food.

2 NPN% = (crude protein - total amino acid) / (crude protein) *100

| Rev No. | Date | Revision Description | Prepared by | Lab. | ESC | OBU | HBS |
|---|---|---|---|---|---|---|---|
| A | 24-Sep-21 | Issued for Information | SIG | ERC | ES | SY | EA |
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