#### **PROFORMA**

CHECK LIST FOR VERIFYING BONAFIDES OF THE APPLICANT SEEKING REGISTRATION UNDER SECTION 9(4) FOR MANUFACTURE OF TECHNICAL GRADE PESTICIDES/FORMULATIONS.

| STIC | CIDES/FORMULATIONS.   |                                   |                       |                 |
|------|---|-----------------------------------|-----------------------|-----------------|
| 1.   | Name of the Applicant :   |                                   |                       |                 |
| 2.   | Detailed Address :  |                                   |                       |                 |
| 3.   | Is the proposed factory located in industrial area?  a) Size of the proposed industrial plot:   |                                   |                       |                 |
|      | b) Covered area for proposed manufacturing unit   |                                   |                       |                 |
|      | c) Covered area for proposed storage  |                                   |                       |                 |
| 4.   | Industrial unit   |                                   |                       |                 |
| 5.   | (attach extra sheet, if required)   | nployed by the app<br>Designation | olicant (detail in fo | ollowing format |
| 6    | Proposed laboratory facilities (List of<br>Laboratory equipments and instruments<br>Available for in house quality control)   | :                                 |                       |                 |
| 7    | <ul> <li>Proposed manufacturing facilities<br/>(giving information on manufacturing/<br/>formulation equipments/machineries<br/>as well as equipments for packaging<br/>of pesticides)</li> </ul> | :                                 |                       |                 |
| 8    | Proposed effluent treatment method  | :                                 |                       |                 |
| ç    | Proposed medical facilities   | :                                 |                       |                 |
|      |   |                                   |                       |                 |

Place: Dated:

RECOMMENDATION

Name and Designation With Seal

NOTE:

Manufacturing Licence shall be issued only after verification of the actual facilities by the concerned State Department of Agriculture.

#### FORM III (See Rule 9)

## Application for the grant of license of manufacture of Insecticides

| Name, address and status of the applicant      |            |                     |                   |
|--|------------|---------------------|-------------------|
| Address of the premises where the manufac      | turing act | ivity will be done: |                   |
| Name of the insecticides with Name of the R    | egistratio | n No Date           |                   |
| Their registration number and Insecticide      | es         |                     |                   |
| Date for which manufacturing                   | 1.         |                     |                   |
| License is applied (enclose copies             | 2.         |                     |                   |
| of certificate of registration duly            | 3.         |                     |                   |
| Signed by the applicant)                       |            |                     |                   |
| Whether any registration is Provisional, if so | give par   | ticulars.           |                   |
| Details of full time expert staff              | Name       | Qualification       | Experience        |
| Connected with the manufacture                 | 1          |                     |                   |
| and testing of he insecticides in              | 2          |                     |                   |
| The above unit                                 | 3          |                     |                   |
| Whether all the facilities required            |            |                     |                   |
| Under Chapter VIII of the Rules have           |            |                     |                   |
| Been provided, Give full details               |            |                     |                   |
| In a separate sheet                            |            |                     |                   |
| Particulars of the fee deposited.              |            |                     |                   |
|  |            |                     |                   |
| Signature of the applicant                     |            |                     |                   |
|  |            |                     |                   |
| VERIFICA                                       | TION       |                     |                   |
| Is   | /0         |                     |                   |
| do hereby solemnly verify that to the best of  | my knov    | vledge and belief ' | the information   |
| given in the application and the annexure ar   | nd statem  | ents accompanyir    | ng it, is correct |
| and complete.                                  |            |                     |                   |
| I further declare that I am making             | this ap    | plication in my     |                   |
| and that I am compete                          | nt to mak  | te this application | and verify it by  |
| virtue of; a pl                                | noto/attes | sted copy or wni    | ch is enclosed    |
| nerewith.                                      |            |                     |                   |
| Date:  |            | Signature w         | ith seal          |
| Place:   |            |                     |                   |
| ridue.   |            |                     |                   |

## FORM IV [See Rule 9 (1)]

## Application for renewal of license to manufacture insecticides

| а.  | I/W  | e      |        |          |           |             | _         | of                               |              |           | hereby                                  |
|-----|------|--------|--------|----------|-----------|-------------|-----------|----------------------------------|--------------|-----------|---|
|     | ann  | ly for | the    | renewa   | d of the  | e license   | to        | manufacture                      | insecticiae  | es on un  | e premises                              |
|     | situ | ated _ |        |          |           |             |           | (Licer                           | ise No. and  | date to   | be given).                              |
| b.  | The  | other  | deta   | ils rega | ırding th | ne manuf    | act       | ure of the inse                  | ecticide cor | itinue to | remain the                              |
|     | sam  |        |        |          |           |             |           |                                  |              |           |   |
|     |      |        |        |          | deposite  |             |           |                                  |              |           |   |
| d.  | The  | licen  | se is  | enclose  | d herew   | ith.        |           |                                  |              |           |   |
|     |      |        |        |          |           |             |           |                                  |              |           | Signature                               |
|     |      | Date:  |        |          |           |             |           |                                  |              |           | Digitatare                              |
|     |      |        |        |          |           |             |           |                                  |              |           |   |
|     |      |        |        |          |           | VER         | IFI       | CATION                           |              |           |   |
| T   |      |        |        |          |           |             |           | S/o                              |              |           | ; do                                    |
| he  | reby | soler  | nnly   | verify t | hat wha   | at is state | ed        | above is true                    | and correc   | t to the  | best of my                              |
|     |      | dge a  |        |          |           |             |           |                                  |              |           |   |
|     |      |        |        |          |           |             |           | liantian in my                   | capacity :   | ac (decid | nation) and                             |
| 1.1 | urth | er dec | clare  | tnat I a | ım mak    | ing this a  | abt       | olication in my<br>application a | nd verify    | it hv     | virtue o                                |
| Une | di J | alli   | COI    | пресеп   | . το π    | nhoto / a   | s<br>atte | ested copy of v                  | vhich is en  | closed.   | *************************************** |
| _   |      |        |        |          |           | photo, c    |           |                                  |              |           |   |
| Da  | ite: |        |        |          |           |             |           |                                  | Signati      | ure with  | Seal                                    |
|     |      |        |        |          |           |             |           |                                  |              |           |   |
| Pla | ace: |        |        |          |           |             |           |                                  |              |           |   |
|     |      |        |        |          |           |             |           |                                  |              |           |   |
|     |      |        |        |          |           |             | _         |                                  |              | 6.11      |   |
| No  | ote: | If the | ere is | any ch   | ange in   | details o   | t m       | nanufacture or                   | conditions   | or iicens | se subject t                            |
|     |      | wnici  | n the  | iicense  | is requi  | reu to be   | : re      | newed, the sa                    | ine may be   | = mulcati | cu nere.                                |

## DOCUMENT REQUIRED FOR THE INSTALLATION OF MANUFACTURING UNIT FOR FORMULATION/TECHNICAL OF PESTICIDES.

- Proof of Ownership in favour of the firm either owned or rented site/plot/land where the Manufacturing unit of pesticides is to be proposed for establishment.
- Original/Attested copies of the Insecticide/ Insecticides registered by Central Insecticides Board and Registration Committee, Govt. of India, Ministry of Agriculture, (Department of Agriculture & Cooperation) Directorate of Plant Protection, Quarantine & Storage, N.H.IV, Faridabad (Haryana) of the products desired to be formulated in the Unit/Factory.
- 3. Detail of minimum infrastructure facilities to be created/made-as per the guidelines issued by Ministry of Agriculture, (Department of Agriculture & Co- operation) Directorate of Plant Protection, Quarantine & Storage, N.H.IV, Faridabad (Haryana) for the minimum infrastructure to be created by the manufactures of pesticides and their formulations to meet the requirement for the issue of licence by respective State Government (Licencing Authority)
- Application for the grant or renewal of a licence to manufacturing any insecticide/ insecticides shall be made in form —III or form-IV as the case may be to the licensing officer.
- 5. Fee of Rs 50/ for the grant /renewal of licence for every insecticide/ insecticides subject to maximum of Rs 500/
- No Objection Certificate/ consent for Air, water & HWM from Pollution angle issued by competent authority/ Board/ Department.
- 7. List of members of the board with proof of complete address and identification.
- Copy of resolution passed by the board of directors to authorizing a person for submitting papers in the office under his signature.
- 9. Proof of registration of the unit with the small scale industries department.
- 10. Affidavit from Director/Proprietor to undertake the responsibility of Chemist Responsible for quality control and person responsible for conduct of business under section 33 of the insecticides Act,1968 in case leave /retires /left over the firm or terminated from the firm ,and authorized or nominate other person and also take responsibility to appear in the court.
- 11. Affidavit from responsible person to maintains quality of products under section 33 of the insecticides Act, 1968. With copy of resolution passed by the board of directors along with proof of address & identification.
- 12. List of Plant / Machineries.
- 13. List of laboratory equipments.
- 14. Consent of Medical Doctor required under Rules 37 of Insecticides Rule, 1971.
- 15. List of first-aid measures required under Rules 38 of Insecticides Rules, 1971.

Proforma for inspection of insecticides manufacturing units in Haryana state.

| 1.  |          | of the manufacturing unit         |   |
|-----|----------|-----------------------------------|---|
| 2.  | Locatio  | on/Address of the unit            | )   |
| 3.  | Purpos   | se                                |   |
|     |          | ew Licence                        |   |
|     | b) Re    | enewal of Licence                 |   |
|     | c) A     | ddition of new products/ items    |   |
|     | d) A     | nnual/ Surprise Inspection        |   |
|     | e) A     | ny other                          |   |
|     |          |                                   | 0.1.1   |
| 4.  | Is the   | Unit registered with DGT/De       | epartment of Industries &                       |
|     | Comm     | nerce ?                           |   |
|     | If so, t | he Number and Year of Registr     | ration  |
| 5.  | Is the   | Unit certified by the Authority i | under Factories Act ?                           |
| 6.  | Infras   | structural Facilities:            | 1 Constant                                      |
| (a) | (i)      | Whether sufficient provisions     | have been made for storage                      |
|     |          | of raw material and finished      | products of EC, WF, DI,                         |
|     |          | Weedicides etc separately.        | description required for                        |
|     | (ii)     | Has the Unit separate sheds       | and machinery required for                      |
|     |          | the formulation of EC, WP, D      | pp, weedicides etc :                            |
|     | (iii)    | Is the machinery in working o     | order :   |
| (b) |          | ls of Machinery (List to be att   | tacned)   |
|     | (i)      | For EC formulation.               |   |
|     | (ii)     | For DP formulation.               |   |
|     | (iii)    | For WP formulation.               |   |
|     | (iv)     | For Weedicides.                   |   |
|     | (v)      | For any other.                    |   |
| 7.  | Labo     | oratory                           | I requirements (List of equipments to be given) |
|     |          | Laboratory equipped as per 15     | 1 requirements (East of equipments to 5.8       |
|     | 1        |                                   |   |
|     | 2        |                                   |   |
|     | 3        |                                   |   |
|     | 4        |                                   |   |
|     | 5        |                                   |   |
| -   |          | rnal analysis of pesticides carr  | ried out  |
| 8.  |          |                                   | Standard Misbranded                             |
|     | Year     | Name(s) of product(s)             | SALIGUA   |
|     | Fred     | uency of analysis of different cl | hemicals and their results.                     |
|     | 1100     | delie, of diaryons of enterent of |   |
| 9.  | Whe      | ether Bathroom/Toilet facilities  | have been provided at the site.                 |
| L   |          |                                   |   |

|     |         | C. S. Sabting devices?  |            |
|-----|---------|---|------------|
| 10. | Has the | he Unit made adequate arrangements for fire-fighting devices ?                            |            |
|     | If yes, | s, details of systems provided.   |            |
|     | - 11    | ils of arrangements made for discharge  |            |
| 11. | Details | ist particles, fumes, effluents etc. If yes,  |            |
|     | of dus  | st particles, fundes, efficients etc. If yes,   |            |
|     | details | ls of systems provided.   |            |
| 12. |         | ert staff connected with the manufacturing:   |            |
|     | a)      | Name  |            |
|     | b)      | Qualification   |            |
|     | c)      | Experience  |            |
|     | d)      | Residential Address   |            |
|     | e)      | Other staff   |            |
| 13. | Respo   | ponsible Person nominated:  |            |
| 13. | a)      | Name  |            |
|     | b)      | Father's Name   |            |
|     | c)      | Qualification   |            |
|     | d)      | Experience  |            |
|     | e)      | Residential Address   |            |
|     | 1 ′     | they doing any contract formulation? If yes, for whom and for which item                  |            |
| 15. | Are     | e the products manufactured by the Unit marketed by any other agency? If a dress thereof. | ,          |
| 16  | Grad    | urce of procurement of TGM (Technical ade Material)                                       |            |
| -   | Qua     | ality assurance for TGM (Technical Grade Material)  |            |
| -   | (i)     | Testing facilities for TGM  |            |
| -   | (ii)    |   |            |
| -   | iii)    | F   | the maniad |
| 17  | . Qua   | uantity of pesticides (product-wise) formulated (attach list) during                      | the period |
|     |         | to  |            |
| 18  | 3. Has  | as the Unit adequate & proper facilities like:  |            |
|     | a)      | Sufficient area for formulation & storage.  |            |
|     | b)      | herbicides.   |            |
|     | c)      | tanks for solvents for liquid formulation.  |            |
|     | d)      | 1: C WD   |            |

|     | e) l   | Filling & sealing line for formulation and                                       |        |
|-----|--------|--|--------|
|     | - 1.   | granules granulated plant with accessories.                                      |        |
|     | f) :   | Sufficient technical manpower (Details).   |        |
|     |        |  |        |
| 19. | How    | are the used containers/ packing and washing                                     |        |
| ļ   | dispo  | osed off?  |        |
| 20. | Is dr  | rinking water facility sufficient for the workers                                |        |
|     | at the | e factory premises ?   |        |
| 21. | Are    | the workers being trained in safety measures                                     |        |
|     | and l  | handling of savoury equipments etc?  |        |
| 22. | Has    | the Unit provided protective clothing to the                                     |        |
|     |        | kers? Detail of protective clothing &  |        |
|     | resp   | piratory devices being used.   |        |
| 23. | Has    | the Unit made arrangements for adequate  |        |
|     | pow    | ver supply (Electricity).  |        |
| 24. | Has    | the firm valid Air/Water consents from   |        |
|     | Poll   | lution Control Board, Haryana? If so, the dates                                  |        |
|     |        | heir validity.   |        |
|     | 1-     | Air  |        |
|     | 2-     | Water  |        |
| 25. | Has    | s the Unit applied for  Registration of new products to the Registrat            | ion    |
|     | a)     |  |        |
|     |        | Committee, Ministry of Agriculture, Govt. of India. If                           | 30,    |
|     |        | No. & date of application.   | inσ    |
|     | b)     | Securing a licence to manufacture and sale to the Licens                         | ana    |
|     |        | Officer notified/appointed by the State other than Harya                         | ana.   |
|     |        | If so, name of the State.  |        |
|     | (1)    |  |        |
|     | (2)    | Selling State(s)   | 2007   |
| 26  |        | Are the medical facilities available in the factory premis                       | ning . |
|     | b.     | Has the Unit ISI standard book on symptoms of poison                             | mig    |
|     |        | and treatment?   | 2 If   |
|     | c.     | Are the workers being examined medically periodically                            | 7: 11  |
|     |        | yes, at what intervals?  Is the Unit maintaining sickness record of its employee | e?     |
|     | d.     | Is the Unit maintaining sickness record of its employee                          | hree   |
|     | e.     | Number of persons affected by the pesticides within t                            | ince   |
|     | -      | years.   | cide   |
|     | f.     | Is the medical expert of the Unit familiar with pesti                            | leide  |
| -   |        | poisoning?  Name of Medical Officer with qualification.                          |        |
|     | g.     | Name of Medical Officer with quantication.                                       |        |
| -   | h.     | How far his clinic is situated.  | etor   |
|     | i.     |  | ictor, |
| _   |        | if doctor is part-time?  | first  |
|     | j.     | Are the antidotes readily available and facilities for                           | 11131  |
|     |        | aid measures including artificial respiration?                                   |        |

| 27. A | Any other item which is not covered above. |
|-------|--|
| - 1.  |  |
|       |  |
| 28. R | Recommendation of the inspecting officers. |
|       |  |
|       |  |
|       |  |
|       |  |
|       |  |
|       |  |
|       |  |
|       |  |
|       |  |
|       |  |
|       |  |
|       |  |

Date:

Signatures of Inspecting Officers with Seal

Guidelines for minimum infrastructure facilities to be created by the manufacturers of microbial biopesticides (Antagonistic fungi, Entomopathogenic fungi, Antagonistic bacteria, Entomotoxic bacteria).

(as approved in 297<sup>th</sup> meeting of RC held on 29-01-2009)

| Sl.No. | MANPOWER REQUIREMENT   |
|--------|--|
| 1      | Quality Control Biologist  |
| 2.     | Sufficient personnel to supervise production, maintenance,   |
|        | stores etc.  |
|        | GENERAL REQUIREMENT  |
| 1.     | Production, Mixing & Drying Room and Formulation Unit for Antagonistic fungi/ Entomopathogenic fungi |
| 2.     | Insculption Fermentor & Sterilization Room and   |
| 2.     | Formulation unit for Antagonistic bacteria/ Entomotoxic  |
|        | bacteria.  |
| 3.     | Packaging and storage room   |
| 4.     | Quality Control laboratory   |
| 5.     | Protective clothing  |
| 6.     | Respiratory devices  |
| 7      | First Aid Measure  |
| 8.     | Waste disposal arrangement in compliance with Pollution  |
|        | Control norms  |
|        | PLANT EQUIPMENT REQUIREMENT  |
| 1.     | Plant Fermentor with all accessories / Bioreactor  |
|        | Shaker   |
| 2.     | Steam Boiler   |
| 3.     | Chilling plant   |
| 4.     | Air compressor   |
| 5.     | RO/ Softener (water treatment plant)   |
| 6.     | Distillation Unit  |
| 7.     | Micro centrifuge   |
| 8.     | Magnetic stirrer   |
| 9.     | 300 μ and 160 μ Sieves   |
| 10.    | Electronic Weighing Balance  |
| 11.    | Blender/Homogenizer  |
| 12.    | Vortex   |
| 13.    | Vibro-screen   |
| 14.    |  |
| 15.    | Large air tight container  |
| 16.    |  |

|     | 1  |
|-----|--|
| 17. | Box strapping machine                                  |
| 18. | Racks and cabinet                                      |
|     | LABORATORY EQUIPMENT/ INSTRUMENT REQUIREMENT           |
| 1   | Autoclave  |
| 2.  | Water bath   |
| 3.  | Shaking incubator                                      |
| 4.  | Refrigerator   |
| 5.  | Thermo hygrometer                                      |
| 6.  | U. V. light  |
| 7.  | BOD Incubator  |
| 8.  | Hot Air oven   |
| 9.  | Laminar Flow   |
| 10. | pH meter   |
| 11. | Balance (2-3 decimal places)                           |
| 12. | Vacuum pump  |
| 13. | Hot plate  |
| 14. | Deep freezer   |
| 15. | Spirit   |
| 16. | Microscope and all accessories                         |
| 17. | Glassware viz. Conical Flasks, Test tubes, Beaker etc. |
| 18. | Petri dishes   |
| 19. | Titanium inoculating needles                           |
| 20. | Pipette fillers  |
| 21. | Pipettes (0.1 ml to 20 ml)                             |
| 22. | Haemocytometer   |
| 23. | Colony counter   |

Note: These are the general requirements of minimum infrastructure to be created by the manufacturers. However, for specific microbial biopesticides formulation(s) and their quantum of production, requirement of manpower, space, equipment/ instrument may be needed.

## Guidelines for minimum infrastructure facilities to be created by the manufacturers of Baculoviruses (NPV, GV).

(as approved in 297<sup>th</sup> meeting of RC held on 29-01-2009)

| Sl.No.   | MANPOWER REQUIREMENT   |
|----------|--|
| 1        | Quality Control Biologist  |
| 2.       | Sufficient personnel to supervise production, maintenance, stores etc. |
|          | GENERAL REQUIREMENT  |
| 1        | Post culture production room with temperature and humidity control     |
| 1        | Moth evi-position room with temperature and numberly control           |
| 2.<br>3. | Production room with temperature and humidity control                  |
| 3.<br>4. | Diet preparation room  |
| 5.       | Virus processing lab.  |
| 6.       | Quality control lab.   |
| 7.       | Formulation unit   |
| 8.       | Cold storage   |
| 9.       | Washing and sterilization facility                                     |
| 10.      | Stores room  |
| 11.      | Protective clothing  |
| 12.      | Respiratory devices  |
| 13.      | First aid measures.  |
| 14.      | Waste disposal arrangement in compliance with Pollution Control norms  |

|     | EQUIPMENT/INSTRUMENT REQUIREMENT                                  |
|-----|---|
| 1.  | Diet preparation machine (mixer)                                  |
| 2.  | Diet dispenser.   |
| 3   | Multi channel pipette   |
| 4.  | Vacuum pump with an aspirator                                     |
| 5.  | Blenders  |
| 6.  | Multipurpose centrifuges  |
| 7.  | B.O.D. incubator or an incubator room or an environmental chamber |
| 8   | Scale balance   |
| 9   | Digital balance   |
| 9.  | Haemocytometer shallow depth Counting chamber                     |
| 11. | Hot air oven.   |
| 12. | Compound research microscope.                                     |
| 13. | Zoom microscope.  |
| 14. | Vortex mixers   |
| 15. | Tally counters  |

| 16. | Electric stove.          | ĺ |
|-----|--------------------------|---|
| 17. | Autoclave                | 1 |
| 18. | Shaker.                  |   |
| 19. | Water distillation unit. | - |
| 20. | Air conditioners         | 1 |
| 21. | Humidifiers              | + |
| 22. | Oviposition iron cage    | 1 |
| 23. | Washing machine          | + |
| 24. | Racks and cabinet        | + |
| 25. | Refrigerators            | _ |
|     |                          |   |

**Note:** These are the general requirements of minimum infrastructure to be created by the manufacturers. However, for specific baculovirus formulation(s) and their quantum of production, requirement of manpower, space, equipment/ instrument may be needed.

# Guidelines for the minimum infrastructure to be created by the manufacturers of pesticides and their formulations to meet the requirements for issue of licence by respective State Governments (Licencing Authority)—as approved in 261st RC held on 15-02-2006

These are the general requirements, However, for individual chemicals, specific requirements are to be installed and additional equipment are to be supplemented to suit the reactions involved in the manufacturing process. Further, other specifications as per the Insecticides Rules viz. medical facilities, protective clothing, respiratory devices, first aid measures, training towards safety precaution and handling safety equipment, safety disposal, etc. are required to be made.

## The minimum infrastructure with respect to manpower shall be as under

| <u>Sr.</u><br><u>No.</u> | Manpower  | For Technical plant | For formulation<br>plant |
|--------------------------|---|---------------------|--------------------------|
| 1                        | Production Manager                                | R                   | R                        |
| 2.                       | Supervisor  | R                   | R                        |
| 3.                       | Instrument and process control personnel          | R                   | R*/NR                    |
| 4.                       | Maintenance Personnel (Plant and utilities)       | R                   | R                        |
| 5.                       | Store Keeper (Raw material and finished products) | R                   | R                        |
| 6.                       | Quality Control Chemist                           | R                   | R                        |
| 7.                       | Security personnel                                | R                   | R                        |

## \* In case of automatic plant

## 2. Minimum infrastructure with respect to machinery & equipment

## A. For technical plant

| Sr.<br>No. | Equipment                  | For Technical plant |
|------------|----------------------------|---------------------|
| 1          | Control console            | R                   |
| 2.         | Feed tank for raw material | R                   |
| 3.         | Reactors                   | R                   |

| ١.  | Distillation towers   | R |
|-----|---|---|
| 5.  | Evaporators   | R |
| 6.  | Condenser / heat exchanger / boiler/ extinguisher plant / chilling system / steam plant | R |
| 7.  | Crystallizer  | R |
| 8.  | Centrifuge  | R |
| 9.  | Drier   | R |
| 10. | Phase separator   | R |
| 11. | Extractor   | R |
| 12  | Storage tank  | R |
| 13. | Process water tank  | R |
| 14. | Pipelines with conventional colour code   | R |
| 15. | Gas plant   | R |

#### For Formulation plant B.

| S.No. | Equipment                  | Solid, DP,<br>WG, SP, etc | WG/G | Liquid (EC,<br>EW, SL) |
|-------|----------------------------|---------------------------|------|------------------------|
| 1.    | Feeding channel /<br>Chute | R                         | R    | R                      |
| 2.    | Jaw Crusher                | R                         | R    | NR                     |
| 3.    | Raw material feed tank     | R                         | R    | R                      |
| 4.    | Pulveriser                 | R                         | R    | NR                     |
| 5.    | Blender                    | R                         | R    | R                      |
| 6.    | Siever                     | R                         | R    | R                      |
| 7.    | Bag Filter                 | R                         | NR   | NR                     |

| 8.  | Homogenizer           | R  | R  | R  |
|-----|-----------------------|----|----|----|
| 9.  | Ball mill             | R  | NR | NR |
| 10. | Weighing machine /    | R  | R  | R  |
|     | platform balance      |    |    |    |
| 11. | Vessel with stirrer   | R  | R  | R  |
| 12. | Drier                 | R  | R  | NR |
| 13. | Cooling machine       | NR | R  | R  |
| 14. | Sprayer               | NR | R  | NR |
| 15. | Water tank for liquid | NR | NR | R  |
| 16. | Filter                | NR | NR | R  |

#### Equipment for quality control laboratory 3.

- Analytical weighing balance 1.
- 2. Hot air over
- Refrigerator 3.
- 4. pH meter
- Spectro-photometer / colourimeter 5.
- GLC / HPLC depending on the products analytical process as in the 6. specification.
- Standard glassware, chemical and general requirements for laboratory 7.
- Pesticide Repository 8.
- Specification / BIS standard of the product to be manufactured / formulated 9.
- Sieve shaker. 10.
- Fume Hood 11.

- Distilled water still 12.
- Flash point apparatus 13.
- Melting point apparaturs 14.

#### Packaging plant and equipment 4.

- Packaging machinery. 1.
- Filling machine (automatic / semi automatic). 2.
- Weighing machine 3.
- Bagging machine 4.
- Sealing machine 5.
- Labeling equipment. 6.

Guidelines for minimum infrastructure facilities to be created by the manufacturers of botanical biopesticides (Pyrethrum, Azadirachtin, Cymbopogon etc.)

(as approved in 297<sup>th</sup> meeting of RC held on 29-01-2009)

| Sl.No.      | MANPOWER REQUIRMENT  |  |  |  |
|-------------|--|--|--|--|
| 1.          | Quality Control Biologist  |  |  |  |
| 2.          | Sufficient personnel to supervise production, maintenance, stores etc. |  |  |  |
|             | GENERAL REQUIREMENT  |  |  |  |
| 1.          | Extraction room  |  |  |  |
| 2.          | Production room  |  |  |  |
| 3.          | Formulation unit   |  |  |  |
| 4.          | Packing and storage room   |  |  |  |
| 5.          | Quality control laboratory   |  |  |  |
| 6.          | Protective clothing  |  |  |  |
| 7           | Respiratory devices  |  |  |  |
| 8.          | First aid measures   |  |  |  |
| 9.          | Waste disposal arrangement in compliance with Pollution Control norms  |  |  |  |
|             | PLANT EQUIPMENT/INSTRUMENT REQUIREMENT                                 |  |  |  |
| 1.          | Phase separation vessels   |  |  |  |
| 2. Decanter |  |  |  |  |
| 3.          | Mixing vessels with stirrer  |  |  |  |
| 4.          | Centrifuge   |  |  |  |
| 5.          | Soxhlet apparatus  |  |  |  |
| 6.          | Electric oven with thermometer   |  |  |  |
| 7.          | Chemical measuring cylinders   |  |  |  |
| 8.          | Chemical transfer pumps  |  |  |  |
| 9.          | Filter pressure pump   |  |  |  |
| 10.         | Measuring cans   |  |  |  |
| 11.         | Electric weighing machine  |  |  |  |
| 12.         | Counter scales   |  |  |  |
| 13.         | Filtration assembly  |  |  |  |
| 14.         | Water distillation unit  |  |  |  |
| 15.         | Wrist action shaker  |  |  |  |
| 16.         | Blender  |  |  |  |
| 17.         | Vortex   |  |  |  |
| 18.         | Large air tight containers   |  |  |  |
| 19.         | Material filling trays   |  |  |  |

1

| 20. | Storage tank  |
|-----|---|
| 21. | Filling machine   |
| 22. | Sealing machine   |
| 23. | Packing accessories   |
|     | THE PROJUDEMENT   |
|     | LABORATORY EQUIPMENT/INSTRUMENT REQUIREMENT                           |
| 1.  | HPLC System   |
| 2.  | pH meter  |
| 3.  | Spectrophotometer   |
| 4.  | Refrigerator  |
| 5.  | Thermometer   |
| 6.  | Microscope  |
| 7.  | Autoclave   |
| 8.  | U. V. Lamp  |
| 9.  | Abel flash point Apparatus  |
| 10. | Incubator   |
| 11. | Glassware viz. Conical Flasks, Test tubes, Beaker, Separating funnel, |
|     | Funnels, Glass tubes, etc.  |
| 12. | Pipette fillers   |
| 13. | Pipette   |
| 14. | Burette   |
| 15. | TLC apparatus & accessories   |
| 16. | Micro-syringes  |

Note: These are the general requirements of minimum infrastructure to be created by the manufacturers. However, for specific botanical biopesticides formulation(s) and their quantum of production, requirement of manpower, space, equipment /instrument may be needed.