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## Unit 1: Use of fumigation in invertebrate pest management

Guided Learning: 30 hours

Total Unit Time: 48 hours

Unit Level: 3

Unit Reference No. D/507/9289

### Summary of Learning Outcomes:

To achieve this qualification a candidate must:

1. **Understand the Health and Safety and legal requirements for fumigation, by being able to meet the following assessment criteria:**
  - 1.1 State the hazards and risks of using fumigation compounds, including those relevant to the:
    - Operator
    - General public
    - Environment
    - Non-target species
  - 1.2 State methods used to protect operators from harm when carrying out fumigation operations, to include PPE and RPE requirements
  - 1.3 Outline the requirements for risk assessments prior to the use of fumigation compounds
  - 1.4 Outline the legislative requirements governing the use of fumigation compounds
  - 1.5 Explain the record-keeping requirements for the use of fumigants.
2. **Know the properties and uses of compounds approved as fumigants by UK legislation, by being able to meet the following assessment criteria:**
  - 2.1 List the compounds that are approved for use as fumigants
  - 2.2 Outline the properties of the different fumigants, to include their toxicity and method of generation where relevant
  - 2.3 Describe the symptoms of poisoning caused by the different fumigants
  - 2.4 State the emergency procedures necessary in the event of poisoning by or spillage of fumigants
  - 2.5 State the uses of the different fumigants for the management of pests
3. **Understand different fumigation strategies, by being able to meet the following assessment criteria:**
  - 3.1 Explain how fumigation differs from other pest management procedures
  - 3.2 Explain the role of fumigation as part of an integrated pest management programme
  - 3.3 Outline procedures and methods for carrying out the following fumigation strategies:
    - Stacked fumigation
    - Space fumigation

- Container fumigation
  - Chamber fumigation
  - Ship fumigation
- 3.4 Calculate volumes and dosages of fumigants required for effective treatments
  - 3.5 Outline methods for determining the concentration of fumigants during operation
- 4. Know the biology of invertebrate pest species that are controlled by fumigation, by being able to meet the following assessment criteria:**
- 4.1 Explain why the target species need to be controlled
  - 4.2 Outline the features of the target species biology and habitat that facilitate their control by fumigation
  - 4.3 Describe how the presence of the target species can be determined at a site
- 5. Understand the requirements for the safe transport, storage and disposal of fumigation compounds, by being able to meet the following assessment criteria:**
- 5.1 State the disposal arrangements for fumigation compounds and residues
  - 5.2 Outline requirements for the cleaning and disposal of equipment and containers used for fumigation compounds
  - 5.3 State the requirements for the transport and storage of fumigation compounds and residues.

**Content:**

- 1 Understand the Health and Safety and legal requirements for fumigation**
  - 1.1 *Hazards and risks of using fumigation compounds:* Hazards and risks of fumigants currently approved for use; effect of high and low levels of exposure; risks of exposure to fumigants of operators and general public; effect of fumigants on environment and non-target species; risks due to counterfeit fumigants and methods to minimise this such as use of recognised suppliers, stewardship schemes and scrutiny of product labels, the 'Watch Out' initiative; importance of health monitoring for users of fumigation compounds and how this is achieved.
  - 1.2 *Methods used to protect operators from harm when carrying out fumigation operations, to include PPE and RPE requirements:* PPE and RPE required for fumigation activities; different requirements for use of solid, liquid and gaseous fumigants; when protective gloves and boots should and should not be worn; use of coveralls; different types of RPE; face fit tests and factors that will affect the wearing of RPE; inspection and testing requirements; when RPE should be worn; safe working practices.

- 1.3 *Requirements for risk assessments prior to the use of fumigation compounds:* COSHH assessments; duties of operator, operator's employer and premises employer; environmental risk assessments and importance of protection areas (EC Directive 2000/60); importance of COPR.
- 1.4 *Legislative requirements governing the use of fumigation compounds:* Requirements of the following legislation as they apply to the purchase, use, storage and disposal of fumigants; Health and Safety at Work etc Act 1974, Management of Health and Safety at Work Regulations 1999, The Health and Safety (first aid) Regulations 1981, Plant Protection Products (Sustainable Use) Regulations 2012, Wildlife and Countryside Act 1981, Poisons Act 1972 and Poisons Rule 1982, COSHH Regulations, Food and Environment Protection Act 1985, The Control of Pesticides Regulations 1986 (amended 1997), Biocides Regulation (EU) 528/2012.
- 1.5 *Record-keeping requirements for the use of fumigants:* Records relating to training, environmental and risk assessments, COSHH assessments, storage, certification, RPE inspection, treatment, purchase, stock and disposal; compliance with Article 67 of Regulation (EC) No. 1107/2009 or subsequent Articles and Directives.

## **2 Know the properties and uses of compounds approved as fumigants by UK legislation**

- 2.1 *Compounds that are approved for use as fumigants:* Compounds currently approved under UK and EU legislation for use as fumigants.
- 2.2 *Properties of the different fumigants:* Physical properties of fumigants, such as solid, liquid or gas; flammability; corrosive properties; toxicity; method of generation of active fumigant.
- 2.3 *Symptoms of poisoning caused by the different fumigants:* Symptoms exhibited by victim if exposed to low, medium and high concentrations of the different fumigants; short and long term effects of exposure to fumigants.
- 2.4 *Emergency procedures necessary in the event of poisoning by or spillage of fumigants:* Emergency procedures to be followed in the event of poisoning by fumigants or spillage of fumigant; suitability of artificial respiration methods if required; need to seek medical attention and to inform emergency services of fumigants used and provide information regarding treatment; procedures for treating skin, eyes and lungs if exposed to fumigants; environmental protection measures; incident reporting procedures.
- 2.5 *Uses of the different fumigants for the management of pests:* Pest species legally controlled by each of the fumigants; fumigation methods for which each of the fumigants is suitable / approved; choice of product following COSHH assessments.

### **3 Understand different fumigation strategies**

- 3.1 *How fumigation differs from other pest management procedures:* Differences between fumigation and other pest management procedures; to include safety, persistence, penetration and residues.
- 3.2 *Role of fumigation as part of an integrated pest management programme:* Definition of integrated pest management; consideration of other management strategies prior to adopting fumigation as a method of control; how other pest management procedures can complement fumigation or reduce the need for fumigation; effectiveness of different treatments.
- 3.3 *Procedures and methods for carrying out fumigation strategies:* Procedures and methods for stacked fumigation, space fumigation, container fumigation, chamber fumigation and ship fumigation; to include specific safety procedures to protect the operator, general public and environment; notification and legislative requirements; sealing of area to be fumigated; venting and clearance of the fumigant; post treatment procedures and clearance certificates.
- 3.4 *Calculation of volumes and dosages of fumigants required for effective treatments:* Determination of volume of space to be fumigated; determination of effective dose required by the use of tables and graphs; importance of consideration of penetration rates for fumigants.
- 3.5 *Methods for determining the concentration of fumigants during operation:* Equipment and methods for determining concentration of fumigants during treatment, testing for leakage of fumigants and determining when an area is safe to enter following fumigation.

### **4 Know the biology of invertebrate pest species that are controlled by fumigation**

- 4.1 *Why the target species need to be controlled:* Role of target pest species in spoilage of commodities, public health risk, damage caused; economic consequences of pest activity.
- 4.2 *Features of the target species biology and habitat that facilitate their control by fumigation:* Habitat of target species which render control by other methods difficult or impractical, such as small cracks and crevices and closed voids, within packaged materials, burrowed within consignments of grain, flour and other bulk commodities, in environments where rapid control is required such as ships; presence of stage in life cycle which is resistant to other treatments such as dormancy or diapause.
- 4.3 *How the presence of the target species can be determined at a site:* Signs which indicate pest activity such as smell, moults, presence of pest.

## **5 Understand the requirements for the safe transport, storage and disposal of fumigation compounds**

- 5.1 *Disposal arrangements for fumigation compounds and residues:* Requirements for the disposal of hazardous waste, to include permissible quantities of hazardous waste, use of authorised contractors and sites, inactivation of compounds prior to disposal.
- 5.2 *Requirements for the cleaning and disposal of equipment and containers used for fumigation compounds:* Need to ensure containers are made safe prior to disposal; methods for inactivating specific fumigants and equipment; classification as hazardous waste.
- 5.3 *Requirements for the transport and storage of fumigation compounds and residues:* Requirements of legislation relating to the transport of dangerous goods; modifications of vehicles to enable transport of fumigation products; signage and vehicle labelling requirements; requirements for the storage of fumigation compounds to include security, containment and signage.

### **Assessment:**

Attainment of the Learning Outcomes for this unit will be centre-assessed. Centres should ensure that the assessment covers all of the learning outcomes for this unit. Examination by multiple choice questions should not form the main assessment method used. Assessment decisions will be subject to External Verification by RSPH.

## **Unit 2: Carry out procedures for the safe fumigation of freight containers and static containers used as fumigation chambers**

Guided Learning: 4 hours  
Total Unit Time: 16 hours  
Unit Level: 3  
Unit Reference No. Y/507/9291

**This is an OPTION unit.**

### **Summary of Learning Outcomes:**

**To achieve this qualification a candidate must:**

- 1. Be able to carry out procedures prior to the fumigation of freight containers and static containers used as fumigation chambers, by being able to meet the following assessment criteria:**
  - 1.1 Conduct a site survey to determine the need for and suitability of fumigation for freight containers and static containers used as fumigation chambers
  - 1.2 Carry out health and safety, COSHH and environmental risk assessments for fumigation of freight containers and static containers used as fumigation chambers.
  - 1.3 Select and put on appropriate PPE and RPE.
  
- 2. Be able to carry out fumigation of freight containers and static containers used as fumigation chambers safely for managing invertebrate pests, by being able to meet the following assessment criteria:**
  - 2.1 Prepare the site for application of fumigants
  - 2.2 Prepare fumigants for use
  - 2.3 Apply appropriate dosages of fumigants to container to manage invertebrate pests
  - 2.4 Monitor the concentration of fumigants during operations
  - 2.5 Carry out safe ventilation and clearance of freight containers and static containers used as fumigation chambers.
  
- 3. Be able to carry out post-operational procedures following fumigation operations of freight containers and static containers used as fumigation chambers, by being able to meet the following assessment criteria:**
  - 3.1 Clean, transport and store equipment used for fumigation
  - 3.2 Dispose of fumigant residues safely

4. **Be able to compile relevant documentation and reports relating to fumigation of freight containers and static containers used as fumigation chambers, by being able to meet the following assessment criteria:**
  - 4.1 Produce reports relating to five different fumigation operations of freight containers and static containers used as fumigation chambers
  - 4.2 Ensure reports comply with all legislative, company and customer requirements
  
5. **Be able to explain procedures for the safe fumigation of freight containers and static containers used as fumigation chambers, by being able to meet the following assessment criteria:**
  - 5.1 Explain the reasons for pre-treatment procedures when fumigating freight containers and static containers used as fumigation chambers
  - 5.2 Explain the actions required when fumigating freight containers and static containers used as fumigation chambers
  - 5.3 Explain the reasons for post-operational procedures following fumigation of freight containers and static containers used as fumigation chambers

**Content:**

- 1 **Be able to carry out procedures prior to the fumigation of freight containers and static containers used as fumigation chambers.**
  - 1.1 *Conduct a site survey:* Site survey is carried out appropriately; site checked for presence of non-target species that may affect use of fumigant; presence of any feature that may affect decision to use fumigant noted; alternative control measures considered before decision made to use fumigant.
  - 1.2 *Carry out health and safety, COSHH and environmental risk assessments:* Suitable risk assessments for fumigation of freight containers and static containers used as fumigation chambers carried out; hazards and risks noted; appropriate control methods and safe operating procedures proposed; environmental risk assessment considers risk of fumigant entering water courses and drains, damage to non-target species, vicinity of occupied buildings and significance of protected areas established under Articles 6 and 7 of Directive 2000/60/EC or subsequent Articles and Directives.
  - 1.3 *Select and put on appropriate PPE and RPE:* Appropriate PPE and RPE for use of fumigant selected, checked for faults and worn/used correctly; cartridge of respirator checked before use.
  
- 2 **Be able to carry out fumigation of freight containers and static containers used as fumigation chambers safely for managing invertebrate pests.**

- 2.1 *Prepare the site:* Site prepared in accordance with standard operating procedures and safe working practices; safety signs positioned appropriately; site checked for presence of non-target species.
- 2.2 *Prepare fumigants for use:* Correct fumigant used for the task; instructions on product label and manufacturers' safety data sheets checked; fumigant prepared for use in accordance with product label and other safety instructions; correct application equipment for the product and formulation selected; application equipment loaded in accordance with manufacturer's instructions; appropriate PPE and RPE worn throughout operation and control measures with regard to operators, other people, non-target species and the environment as stated in the risk assessment are complied with.
- 2.3 *Apply appropriate dosages of fumigant:* Fumigant applied correctly to target area; fumigant only applied in appropriate conditions and at a dosage appropriate for the size of the area treated.
- 2.4 *Monitor concentration of fumigants:* Concentration of fumigant monitored throughout operation; appropriate steps taken to vary the rate of application of the fumigant if monitoring suggests that concentration is at too high or too low a level.
- 2.5 *Carry out safe venting and clearance:* Standard operating procedures followed to vent and clear fumigant safely.

### **3 Be able to carry out post-operational procedures following fumigation operations of freight containers and static containers used as fumigation chambers.**

- 3.1 *Clean, transport and store equipment:* Application equipment and containers emptied of any remaining fumigant safely; emptied containers are packaged and labelled appropriately for later disposal as hazardous waste; application equipment inspected after cleaning for wear and damage; application equipment and packaged used containers are secured appropriately in vehicle.
- 3.2 *Dispose of fumigant residues safely:* Fumigant residues deactivated and disposed of in accordance with guidance in safety data sheets or recognised codes of practice.

### **4 Be able to compile relevant documentation and reports relating to fumigation of freight containers and static containers used as fumigation chambers.**

- 4.1 *Produce reports relating to five different fumigation operations of freight containers and static containers used as fumigation chambers:* Reports are produced detailing operations carried out, amount and type of fumigant used, location of operations and any additional treatments or actions required.

4.2 *Ensure reports comply with all legislative, company and customer requirements:* Reports comply with legislative, company and customer requirements; record keeping requirements relating to fumigant use complied with and maintained appropriately.

**5 Be able to explain procedures for the safe fumigation of freight containers and static containers used as fumigation chambers**

5.1 *Reasons for pre treatment procedures:* Candidate is able to explain actions that he/she takes when carrying out pre-treatment procedures.

5.2 *Actions required when fumigating freight containers and static containers used as fumigation chambers:* Candidate is able to explain actions that he/she takes when fumigating freight containers and static containers used as fumigation chambers.

5.3 *Reasons for post-operational procedures:* Candidate is able to explain actions that he/she takes when carrying out post-operational procedures.

**Assessment for unit 2:**

Attainment of the Learning Outcomes for unit 2 will be assessed by observation and oral questioning / discussions and completion of relevant risk assessments, treatment reports and other documentation. An evidence portfolio of internally assessed work should be compiled for each candidate for submission to the External Verifier. Candidates need to provide evidence of carrying out, under supervision, **TEN** fumigations of freight and / or static containers of varying sizes and construction, including those in-transit and gas & vent.

Evidence for all learning outcomes for unit 2 must come from performance in an actual work environment, but candidates must be supervised at all times when carrying out fumigation operations as part of their training and assessment for these units. There must be valid, authentic and sufficient evidence for all the assessment criteria.

Assessment guidance for this unit is available in the resources section of the centre area of the web-site <http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm>.

### **Unit 3: Carry out procedures for the safe fumigation of commodities under sheet and bulk grain in grain stores**

Guided Learning: 8 hours  
Total Unit Time: 44 hours  
Unit Level: 3  
Unit Reference No. D/507/9292

**This is an OPTION unit.**

#### **Summary of Learning Outcomes:**

**To achieve this qualification a candidate must:**

- 1. Be able to carry out procedures prior to the fumigation of commodities under sheet and bulk grain in grain stores, by being able to meet the following assessment criteria:**
  - 1.1 Conduct a site survey to determine the need for and suitability of fumigation for commodities under sheet and bulk grain in grain stores
  - 1.2 Carry out health and safety, COSHH and environmental risk assessments for fumigation of commodities under sheet and bulk grain in grain stores
  - 1.3 Select and put on appropriate PPE and RPE.
  
- 2. Be able to carry out fumigation of commodities under sheet and bulk grain in grain stores safely for managing invertebrate pests, by being able to meet the following assessment criteria:**
  - 2.1 Prepare the site for application of fumigants
  - 2.2 Prepare fumigants for use
  - 2.3 Apply appropriate dosages of fumigants to commodity to manage invertebrate pests
  - 2.4 Monitor the concentration of fumigants during operations
  - 2.5 Carry out safe ventilation and clearance of commodities under sheet and bulk grain in grain stores.
  
- 3. Be able to carry out post-operational procedures following commodities under sheet and bulk grain in grain stores fumigation operations, by being able to meet the following assessment criteria:**
  - 3.1 Clean, transport and store equipment used for fumigation
  - 3.2 Dispose of fumigant residues safely
  
- 4. Be able to compile relevant documentation and reports relating to fumigation of commodities under sheet and bulk grain in grain stores, by being able to meet the following assessment criteria:**
  - 4.1 Produce reports relating to five different commodities under sheet and bulk grain in grain stores fumigation operations.

4.2 Ensure reports comply with all legislative, company and customer requirements.

**5. Be able to explain procedures for the safe fumigation of commodities under sheet and bulk grain in grain stores, by being able to meet the following assessment criteria:**

- 5.1 Explain the reasons for pre-treatment procedures when fumigating commodities under sheet and bulk grain in grain stores.
- 5.2 Explain the actions required when fumigating commodities under sheet and bulk grain in grain stores
- 5.3 Explain the reasons for post-operational procedures following fumigation of commodities under sheet and bulk grain in grain stores.

**Content:**

- 1 Be able to carry out procedures prior to fumigation of commodities under sheet and bulk grain in grain stores**
  - 1.1 *Conduct a site survey:* Site survey is carried out appropriately; site checked for presence of non-target species that may affect use of fumigant; presence of any feature that may affect decision to use fumigant noted; alternative control measures considered before decision made to use fumigant.
  - 1.2 *Carry out health and safety, COSHH and environmental risk assessments:* Suitable risk assessments for fumigation of commodities under sheet and bulk grain in grain stores; hazards and risks noted; appropriate control methods and safe operating procedures proposed; environmental risk assessment considers risk of fumigant entering water courses and drains, damage to non-target species, vicinity of occupied buildings and significance of protected areas established under Articles 6 and 7 of Directive 2000/60/EC or subsequent Articles and Directives.
  - 1.3 *Select and put on appropriate PPE and RPE:* Appropriate PPE and RPE for use of fumigant selected, checked for faults and worn/used correctly; cartridge of respirator checked before use.
- 2 Be able to carry out fumigation of commodities under sheet and bulk grain in grain stores for managing invertebrate pests.**
  - 2.1 *Prepare the site:* Site prepared in accordance with standard operating procedures and safe working practices; safety signs positioned appropriately; site checked for presence of non-target species.
  - 2.2 *Prepare fumigants for use:* Correct fumigant used for the task; instructions on product label and manufacturers' safety data sheets checked; fumigant prepared for use in accordance with product label and other safety instructions; correct application equipment for the product and formulation selected; application

equipment loaded in accordance with manufacturer's instructions; appropriate PPE and RPE worn throughout operation and control measures with regard to operators, other people, non-target species and the environment as stated in the risk assessment are complied with.

- 2.3 *Apply appropriate dosages of fumigant:* Fumigant applied correctly to target area; fumigant only applied in appropriate conditions and at a dosage appropriate for the size of the area treated.
- 2.4 *Monitor concentration of fumigants:* Concentration of fumigant monitored throughout operation; appropriate steps taken to vary the rate of application of the fumigant if monitoring suggests that concentration is at too high or too low a level.
- 2.5 *Carry out safe venting and clearance:* Standard operating procedures followed to vent and clear fumigant safely.

### **3 Be able to carry out post-operational procedures following commodities under sheet and bulk grain in grain stores fumigation operations.**

- 3.1 *Clean, transport and store equipment:* Application equipment and containers emptied of any remaining fumigant safely; emptied containers are packaged and labelled appropriately for later disposal as hazardous waste; application equipment inspected after cleaning for wear and damage; application equipment and packaged used containers are secured appropriately in vehicle.
- 3.2 *Dispose of fumigant residues safely:* Fumigant residues deactivated and disposed of in accordance with guidance in safety data sheets or recognised codes of practice.

### **4 Be able to compile relevant documentation and reports relating to fumigation of commodities under sheet and bulk grain in grain stores.**

- 4.1 *Produce reports relating to five different commodities under sheet and bulk grain in grain stores fumigation operations:* Reports are produced detailing operations carried out, amount and type of fumigant used, location of operations and any additional treatments or actions required.
- 4.2 *Ensure reports comply with all legislative, company and customer requirements:* Reports comply with legislative, company and customer requirements; record keeping requirements relating to fumigant use complied with and maintained appropriately.

### **5 Be able to explain procedures for the safe fumigation of commodities under sheet and bulk grain in grain stores**

- 5.1 *Reasons for pre treatment procedures:* Candidate is able to explain actions that he/she takes when carrying out pre-treatment procedures.

- 5.2 *Actions required when fumigating commodities under sheet and bulk grain in grain stores:* Candidate is able to explain actions that he/she takes when fumigating grain stores, timber and commodities under sheet.
- 5.3 *Reasons for post-operational procedures:* Candidate is able to explain actions that he/she takes when carrying out post-operational procedures.

### **Assessment for unit 3:**

Attainment of the Learning Outcomes for unit 3 will be assessed by observation and oral questioning / discussions and completion of relevant risk assessments, treatment reports and other documentation. An evidence portfolio of internally assessed work should be compiled for each candidate for submission to the External Verifier. Candidates need to provide evidence of carrying out, under supervision, **TEN** fumigations of commodities under sheet, which should include both fumigation of stacks and fumigation of grain stores.

Evidence for all learning outcomes for unit 3 must come from performance in an actual work environment, but candidates must be supervised at all times when carrying out fumigation operations as part of their training and assessment for these units. There must be valid, authentic and sufficient evidence for all the assessment criteria.

Assessment guidance for this unit is available in the resources section of the centre area of the web-site <http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm>.

## Unit 4: Carry out procedures for the safe fumigation of silos

Guided Learning: 8 hours

Total Unit Time: 44 hours

Unit Level: 3

Unit Reference No. H/507/9293

**This is an OPTION unit.**

### Summary of Learning Outcomes:

**To achieve this qualification a candidate must:**

- 1. Be able to carry out procedures prior to the fumigation of silos, by being able to meet the following assessment criteria:**
  - 1.1 Conduct a site survey to determine the need for and suitability of fumigation for silos.
  - 1.2 Carry out health and safety, COSHH and environmental risk assessments for fumigation of silos.
  - 1.3 Select and put on appropriate PPE and RPE.
  
- 2. Be able to carry out fumigation of silos safely for managing invertebrate pests, by being able to meet the following assessment criteria:**
  - 2.1 Prepare the site for application of fumigants
  - 2.2 Prepare fumigants for use
  - 2.3 Apply appropriate dosages of fumigants to manage invertebrate pests
  - 2.4 Monitor the concentration of fumigants during operations
  - 2.5 Carry out safe ventilation and clearance of silos
  
- 3. Be able to carry out post-operational procedures following silo fumigation operations, by being able to meet the following assessment criteria:**
  - 3.1 Clean, transport and store equipment used for fumigation
  - 3.2 Dispose of fumigant residues safely
  
- 4. Be able to compile relevant documentation and reports relating to fumigation of silos, by being able to meet the following assessment criteria:**
  - 4.1 Produce reports relating to five different silo fumigation operations.
  - 4.2 Ensure reports comply with all legislative, company and customer requirements.
  
- 5. Be able to explain procedures for the safe fumigation of silos by being able to meet the following assessment criteria:**
  - 5.1 Explain the reasons for pre-treatment procedures when fumigating silos.

- 5.2 Explain the actions required when fumigating silos.
- 5.3 Explain the reasons for post-operational procedures following fumigation of silos.

**Content:**

**1 Be able to carry out procedures prior to fumigation of silos**

- 1.1 *Conduct a site survey:* Site survey is carried out appropriately; site checked for presence of non-target species that may affect use of fumigant; presence of any feature that may affect decision to use fumigant noted; alternative control measures considered before decision made to use fumigant.
- 1.2 *Carry out health and safety, COSHH and environmental risk assessments:* Suitable risk assessments for fumigation of silos carried out; hazards and risks noted; appropriate control methods and safe operating procedures proposed; environmental risk assessment considers risk of fumigant entering water courses and drains, damage to non-target species, vicinity of occupied buildings and significance of protected areas established under Articles 6 and 7 of Directive 2000/60/EC or subsequent Articles and Directives.
- 1.3 *Select and put on appropriate PPE and RPE:* Appropriate PPE and RPE for use of fumigant selected, checked for faults and worn/used correctly; cartridge of respirator checked before use.

**2 Be able to carry out fumigation of silos safely for managing invertebrate pests.**

- 2.1 *Prepare the site:* Site prepared in accordance with standard operating procedures and safe working practices; safety signs positioned appropriately; site checked for presence of non-target species.
- 2.2 *Prepare fumigants for use:* Correct fumigant used for the task; instructions on product label and manufacturers' safety data sheets checked; fumigant prepared for use in accordance with product label and other safety instructions; correct application equipment for the product and formulation selected; application equipment loaded in accordance with manufacturer's instructions; appropriate PPE and RPE worn throughout operation and control measures with regard to operators, other people, non-target species and the environment as stated in the risk assessment are complied with.
- 2.3 *Apply appropriate dosages of fumigant:* Fumigant applied correctly to target area; fumigant only applied in appropriate conditions and at a dosage appropriate for the size of the area treated.
- 2.4 *Monitor concentration of fumigants:* Concentration of fumigant monitored throughout operation; appropriate steps taken to vary the rate of application of the fumigant if monitoring suggests that concentration is at too high or too low a level.

2.5 *Carry out safe venting and clearance:* Standard operating procedures followed to vent and clear fumigant safely.

**3 Be able to carry out post-operational procedures following silo fumigation operations**

3.1 *Clean, transport and store equipment:* Application equipment and containers emptied of any remaining fumigant safely; emptied containers are packaged and labelled appropriately for later disposal as hazardous waste; application equipment inspected after cleaning for wear and damage; application equipment and packaged used containers are secured appropriately in vehicle.

3.2 *Dispose of fumigant residues safely:* Fumigant residues deactivated and disposed of in accordance with guidance in safety data sheets or recognised codes of practice.

**4 Be able to compile relevant documentation and reports relating to fumigation of silos.**

4.1 *Produce reports relating to five different silo fumigation operations:* Reports are produced detailing operations carried out, amount and type of fumigant used, location of operations and any additional treatments or actions required.

4.2 *Ensure reports comply with all legislative, company and customer requirements:* Reports comply with legislative, company and customer requirements; record keeping requirements relating to fumigant use complied with and maintained appropriately.

**5 Be able to explain procedures for the safe fumigation of silos.**

5.1 *Reasons for pre treatment procedures:* Candidate is able to explain actions that he/she takes when carrying out pre-treatment procedures.

5.2 *Actions required when fumigating containers and lighters:* Candidate is able to explain actions that he/she takes when fumigating silos.

5.3 *Reasons for post-operational procedures:* Candidate is able to explain actions that he/she takes when carrying out post-operational procedures.

#### **Assessment for unit 4:**

Attainment of the Learning Outcomes for unit 4 will be assessed by observation and oral questioning / discussions and completion of relevant risk assessments, treatment reports and other documentation. An evidence portfolio of internally assessed work should be compiled for each candidate for submission to the External Verifier. Candidates need to provide evidence of carrying out, under supervision, **TEN** fumigations of silos.

Evidence for all learning outcomes for unit 4 must come from performance in an actual work environment, but candidates must be supervised at all times when carrying out fumigation operations as part of their training and assessment for these units. There must be valid, authentic and sufficient evidence for all the assessment criteria.

Assessment guidance for this unit is available in the resources section of the centre area of the web-site <http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm>.

## Unit 5: Carry out procedures for the safe fumigation of ships' holds

Guided Learning: 8 hours

Total Unit Time: 100 hours

Unit Level: 3

Unit Reference No. K/507/9294

**This is an OPTION unit.**

### Summary of Learning Outcomes:

**To achieve this qualification a candidate must:**

- 1. Be able to carry out procedures prior to the fumigation of ships' holds, by being able to meet the following assessment criteria:**
  - 1.1 Conduct a site survey to determine the need for and suitability of fumigation for ships' holds.
  - 1.2 Carry out health and safety, COSHH and environmental risk assessments for fumigation of ships' holds.
  - 1.3 Select and put on appropriate PPE and RPE.
  
- 2. Be able to carry out fumigation of ships' holds safely for managing invertebrate pests, by being able to meet the following assessment criteria:**
  - 2.1 Prepare the site for application of fumigants
  - 2.2 Prepare fumigants for use
  - 2.3 Apply appropriate dosages of fumigants to manage invertebrate pests
  - 2.4 Monitor the concentration of fumigants during operations
  - 2.5 Carry out safe ventilation and clearance of ships' holds.
  
- 3. Be able to carry out post-operational procedures following ship fumigation operations, by being able to meet the following assessment criteria:**
  - 3.1 Clean, transport and store equipment used for fumigation
  - 3.2 Dispose of fumigant residues safely
  
- 4. Be able to compile relevant documentation and reports relating to fumigation of ships' holds, by being able to meet the following assessment criteria:**
  - 4.1 Produce reports relating to five different ship fumigation operations.
  - 4.2 Ensure reports comply with all legislative, company and customer requirements.
  
- 5. Be able to explain procedures for the safe fumigation of ships' holds, by being able to meet the following assessment criteria:**
  - 5.1 Explain the reasons for pre-treatment procedures when fumigating ships' holds.
  - 5.2 Explain the actions required when fumigating ships' holds.

- 5.3 Explain the reasons for post-operational procedures following fumigation of ships' holds.

**Content:**

**1 Be able to carry out procedures prior to fumigation of ships' holds**

- 1.1 *Conduct a site survey:* Site survey is carried out appropriately; site checked for presence of non-target species that may affect use of fumigant; presence of any feature that may affect decision to use fumigant noted; alternative control measures considered before decision made to use fumigant.
- 1.2 *Carry out health and safety, COSHH and environmental risk assessments:* Suitable risk assessments for fumigation of ships carried out; hazards and risks noted; appropriate control methods and safe operating procedures proposed; environmental risk assessment considers risk of fumigant entering water courses and drains, damage to non-target species, vicinity of occupied buildings and significance of protected areas established under Articles 6 and 7 of Directive 2000/60/EC or subsequent Articles and Directives.
- 1.3 *Select and put on appropriate PPE and RPE:* Appropriate PPE and RPE for use of fumigant selected, checked for faults and worn/used correctly; cartridge of respirator checked before use.

**2 Be able to carry out fumigation of ships' holds safely for managing invertebrate pests.**

- 2.1 *Prepare the site:* Site prepared in accordance with standard operating procedures and safe working practices; safety signs positioned appropriately; site checked for presence of non-target species.
- 2.2 *Prepare fumigants for use:* Correct fumigant used for the task; instructions on product label and manufacturers' safety data sheets checked; fumigant prepared for use in accordance with product label and other safety instructions; correct application equipment for the product and formulation selected; application equipment loaded in accordance with manufacturer's instructions; appropriate PPE and RPE worn throughout operation and control measures with regard to operators, other people, non-target species and the environment as stated in the risk assessment are complied with.
- 2.3 *Apply appropriate dosages of fumigant:* Fumigant applied correctly to target area; fumigant only applied in appropriate conditions and at a dosage appropriate for the size of the area treated.
- 2.4 *Monitor concentration of fumigants:* Concentration of fumigant monitored throughout operation; appropriate steps taken to vary the rate of application of the fumigant if monitoring suggests that concentration is at too high or too low a level.

2.5 *Carry out safe venting and clearance:* Standard operating procedures followed to vent and clear fumigant safely.

**3 Be able to carry out post-operational procedures following ship fumigation operations**

3.1 *Clean, transport and store equipment:* Application equipment and containers emptied of any remaining fumigant safely; emptied containers are packaged and labelled appropriately for later disposal as hazardous waste; application equipment inspected after cleaning for wear and damage; application equipment and packaged used containers are secured appropriately in vehicle.

3.2 *Dispose of fumigant residues safely:* Fumigant residues deactivated and disposed of in accordance with guidance in safety data sheets or recognised codes of practice.

**4 Be able to compile relevant documentation and reports relating to fumigation of ships' holds.**

4.1 *Produce reports relating to five different ship fumigation operations:* Reports are produced detailing operations carried out, amount and type of fumigant used, location of operations and any additional treatments or actions required.

4.2 *Ensure reports comply with all legislative, company and customer requirements:* Reports comply with legislative, company and customer requirements; record keeping requirements relating to fumigant use complied with and maintained appropriately.

**5 Be able to explain procedures for the safe fumigation of ships' holds.**

5.1 *Reasons for pre treatment procedures:* Candidate is able to explain actions that he/she takes when carrying out pre-treatment procedures.

5.2 *Actions required when fumigating ships:* Candidate is able to explain actions that he/she takes when fumigating ships' holds.

5.3 *Reasons for post-operational procedures:* Candidate is able to explain actions that he/she takes when carrying out post-operational procedures.

### Assessment for unit 5:

Attainment of the Learning Outcomes for unit 5 will be assessed by observation and oral questioning / discussions and completion of relevant risk assessments, treatment reports and other documentation. An evidence portfolio of internally assessed work should be compiled for each candidate for submission to the External Verifier. Candidates need to provide evidence of carrying out, under supervision, **TEN** fumigations of ships' holds. This must include a range of construction types and tonnage. For this unit candidates should be assessed when carrying out fumigation operations on three different ships.

Evidence for all learning outcomes for unit 5 must come from performance in an actual work environment, but candidates must be supervised at all times when carrying out fumigation operations as part of their training and assessment for these units. There must be valid, authentic and sufficient evidence for all the assessment criteria.

Assessment guidance for this unit is available in the resources section of the centre area of the web-site <http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm>.

## **Unit 6: Carry out procedures for safe fumigation of buildings, warehouses, food processing plants and mills**

Guided Learning: 8 hours  
Total Unit Time: 80 hours  
Unit Level: 3  
Unit Reference No. M/507/9295

**This is an OPTION unit.**

### **Summary of Learning Outcomes:**

**To achieve this qualification a candidate must:**

- 1. Be able to carry out procedures prior to fumigation of buildings, warehouses, food processing plants and mills, by being able to meet the following assessment criteria:**
  - 1.1 Conduct a site survey to determine the need for and suitability of fumigation of buildings, warehouses, food processing plants and mills.
  - 1.2 Carry out health and safety, COSHH and environmental risk assessments for fumigation of buildings, warehouses, food processing plants and mills
  - 1.3 Select and put on appropriate PPE and RPE.
  
- 2. Be able to carry out fumigation of buildings, warehouses, food processing plants and mills safely for managing invertebrate pests, by being able to meet the following assessment criteria:**
  - 2.1 Prepare the site for application of fumigants
  - 2.2 Prepare fumigants for use
  - 2.3 Apply appropriate dosages of fumigants to manage invertebrate pests
  - 2.4 Monitor the concentration of fumigants during operations
  - 2.5 Carry out safe ventilation and clearance of buildings, warehouses, food processing plants and mills.
  
- 3. Be able to carry out post-operational procedures following fumigation operations for buildings, warehouses, food processing plants and mills, by being able to meet the following assessment criteria:**
  - 3.1 Clean, transport and store equipment used for fumigation
  - 3.2 Dispose of fumigant residues safely
  
- 4. Be able to compile relevant documentation and reports relating to fumigation of buildings, warehouses, food processing plants and mills; by being able to meet the following assessment criteria:**
  - 4.1 Produce reports relating to five different fumigation operations for buildings, warehouses, food processing plants and mills.
  - 4.2 Ensure reports comply with all legislative, company and customer requirements.

**5. Be able to explain procedures for safe fumigation of buildings, warehouses, food processing plants and mills, by being able to meet the following assessment criteria:**

- 5.1 Explain the reasons for pre-treatment procedures when carrying out fumigation of buildings, warehouses, food processing plants and mills.
- 5.2 Explain the actions required when fumigating buildings, warehouses, food processing plants and mills.
- 5.3 Explain the reasons for post-operational procedures following fumigation of buildings, warehouses, food processing plants and mills.

**Content:**

**1 Be able to carry out procedures prior to fumigation of buildings, warehouses, food processing plants and mills**

- 1.1 *Conduct a site survey:* Site survey is carried out appropriately; site checked for presence of non-target species that may affect use of fumigant; presence of any feature that may affect decision to use fumigant noted; alternative control measures considered before decision made to use fumigant.
- 1.2 *Carry out health and safety, COSHH and environmental risk assessments:* Suitable risk assessments for fumigation of buildings, warehouses, food processing plants and mills carried out; hazards and risks noted; appropriate control methods and safe operating procedures proposed; environmental risk assessment considers risk of fumigant entering water courses and drains, damage to non-target species, vicinity of occupied buildings and significance of protected areas established under Articles 6 and 7 of Directive 2000/60/EC or subsequent Articles and Directives.
- 1.3 *Select and put on appropriate PPE and RPE:* Appropriate PPE and RPE for use of fumigant selected, checked for faults and worn/used correctly; cartridge of respirator checked before use.

**2 Be able to carry out fumigation of buildings, warehouses, food processing plants and mills safely for managing invertebrate pests.**

- 2.1 *Prepare the site:* Site prepared in accordance with standard operating procedures and safe working practices; safety signs positioned appropriately; site checked for presence of non-target species.
- 2.2 *Prepare fumigants for use:* Correct fumigant used for the task; instructions on product label and manufacturers' safety data sheets checked; fumigant prepared for use in accordance with product label and other safety instructions; correct application equipment for the product and formulation selected; application equipment loaded in accordance with manufacturer's instructions; appropriate PPE and RPE worn throughout operation and control measures with regard to operators, other people, non-target species and the environment as stated in the risk assessment are complied with.

- 2.3 *Apply appropriate dosages of fumigant:* Fumigant applied correctly to target area; fumigant only applied in appropriate conditions and at a dosage appropriate for the size of the area treated.
- 2.4 *Monitor concentration of fumigants:* Concentration of fumigant monitored throughout operation; appropriate steps taken to vary the rate of application of the fumigant if monitoring suggests that concentration is at too high or too low a level.
- 2.5 *Carry out safe venting and clearance:* Standard operating procedures followed to vent and clear fumigant safely.

**3 Be able to carry out post-operational procedures following fumigation operations for buildings, warehouses, food processing plants and mills**

- 3.1 *Clean, transport and store equipment:* Application equipment and containers emptied of any remaining fumigant safely; emptied containers are packaged and labelled appropriately for later disposal as hazardous waste; application equipment inspected after cleaning for wear and damage; application equipment and packaged used containers are secured appropriately in vehicle.
- 3.2 *Dispose of fumigant residues safely:* Fumigant residues deactivated and disposed of in accordance with guidance in safety data sheets or recognised codes of practice.

**4 Be able to compile relevant documentation and reports relating to fumigation of buildings, warehouses, food processing plants and mills, by being able to meet the following assessment criteria:**

- 4.1 *Produce reports relating to five different fumigation operations for buildings, warehouses, food processing plants and mills:* Reports are produced detailing operations carried out, amount and type of fumigant used, location of operations and any additional treatments or actions required.
- 4.2 *Ensure reports comply with all legislative, company and customer requirements:* Reports comply with legislative, company and customer requirements; record keeping requirements relating to fumigant use complied with and maintained appropriately.

**5 Be able to explain procedures for safe fumigation of buildings, warehouses, food processing plants and mills.**

- 5.1 *Reasons for pre treatment procedures:* Candidate is able to explain actions that he/she takes when carrying out pre-treatment procedures.
- 5.2 *Actions required when bubble fumigating:* Candidate is able to explain actions that he/she takes when fumigating buildings, warehouses, food processing plants and mills.

- 5.3 *Reasons for post-operational procedures:* Candidate is able to explain actions that he/she takes when carrying out post-operational procedures.

### **Assessment for unit 6:**

Attainment of the Learning Outcomes for unit 6 will be assessed by observation and oral questioning / discussions and completion of relevant risk assessments, treatment reports and other documentation. An evidence portfolio of internally assessed work should be compiled for each candidate for submission to the External Verifier. Candidates need to provide evidence of carrying out, under supervision, **FIVE** fumigations of different structures, which must include multi-floored structures.

Evidence for all learning outcomes for unit 6 must come from performance in an actual work environment, but candidates must be supervised at all times when carrying out fumigation operations as part of their training and assessment for these units. There must be valid, authentic and sufficient evidence for all the assessment criteria.

Assessment guidance for this unit is available in the resources section of the centre area of the web-site <http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm>.

## **Unit 7: Carry out procedures for the safe fumigation of purpose built fumigation chambers**

Guided Learning: 4 hours  
Total Unit Time: 16 hours  
Unit Level: 3  
Unit Reference No. T/507/9296

**This is an OPTION unit.**

### **Summary of Learning Outcomes:**

**To achieve this qualification a candidate must:**

- 1. Be able to carry out procedures prior to fumigation of purpose built fumigation chambers, by being able to meet the following assessment criteria:**
  - 1.1 Conduct a site survey to determine the need for and suitability of fumigation of purpose built fumigation chambers.
  - 1.2 Carry out health and safety, COSHH and environmental risk assessments for fumigation of purpose built fumigation chambers.
  - 1.3 Select and put on appropriate PPE and RPE.
  
- 2. Be able to carry out fumigation of purpose built fumigation chambers for managing invertebrate pests, by being able to meet the following assessment criteria:**
  - 2.1 Prepare the site for application of fumigants
  - 2.2 Prepare fumigants for use
  - 2.3 Apply appropriate dosages of fumigants to manage invertebrate pests
  - 2.4 Monitor the concentration of fumigants during operations
  - 2.5 Carry out safe ventilation and clearance of purpose built fumigation chambers.
  
- 3. Be able to carry out post-operational procedures following fumigation of purpose built fumigation chambers, by being able to meet the following assessment criteria:**
  - 3.1 Clean, transport and store equipment used for fumigation
  - 3.2 Dispose of fumigant residues safely
  
- 4. Be able to compile relevant documentation and reports relating to fumigation of purpose built fumigation chambers, by being able to meet the following assessment criteria:**
  - 4.1 Produce reports relating to five different fumigations of purpose built fumigation chambers.
  - 4.2 Ensure reports comply with all legislative, company and customer requirements.

**5. Be able to explain procedures for safe fumigation of purpose built fumigation chambers, by being able to meet the following assessment criteria:**

- 5.1 Explain the reasons for pre-treatment procedures when carrying out fumigation of purpose built fumigation chambers.
- 5.2 Explain the actions required when fumigating purpose built fumigation chambers.
- 5.3 Explain the reasons for post-operational procedures following fumigation of purpose built fumigation chambers.

**Content:**

**1 Be able to carry out procedures prior to fumigation of purpose built fumigation chambers**

- 1.1 *Conduct a site survey:* Site survey is carried out appropriately; site checked for presence of non-target species that may affect use of fumigant; presence of any feature that may affect decision to use fumigant noted; alternative control measures considered before decision made to use fumigant.
- 1.2 *Carry out health and safety, COSHH and environmental risk assessments:* Suitable risk assessments for fumigation of purpose built fumigation chambers carried out; hazards and risks noted; appropriate control methods and safe operating procedures proposed; environmental risk assessment considers risk of fumigant entering water courses and drains, damage to non-target species, vicinity of occupied buildings and significance of protected areas established under Articles 6 and 7 of Directive 2000/60/EC or subsequent Articles and Directives.
- 1.3 *Select and put on appropriate PPE and RPE:* Appropriate PPE and RPE for use of fumigant selected, checked for faults and worn/used correctly; cartridge of respirator checked before use.

**2 Be able to carry out fumigation of purpose built fumigation chambers for managing invertebrate pests.**

- 2.1 *Prepare the site:* Site prepared in accordance with standard operating procedures and safe working practices; safety signs positioned appropriately; site checked for presence of non-target species.
- 2.2 *Prepare fumigants for use:* Correct fumigant used for the task; instructions on product label and manufacturers' safety data sheets checked; fumigant prepared for use in accordance with product label and other safety instructions; correct application equipment for the product and formulation selected; application equipment loaded in accordance with manufacturer's instructions; appropriate PPE and RPE worn throughout operation and control measures with regard to operators, other people, non-target species and the environment as stated in the risk assessment are complied with.

- 2.3 *Apply appropriate dosages of fumigant:* Fumigant applied correctly to target area; fumigant only applied in appropriate conditions and at a dosage appropriate for the size of the area treated.
- 2.4 *Monitor concentration of fumigants:* Concentration of fumigant monitored throughout operation; appropriate steps taken to vary the rate of application of the fumigant if monitoring suggests that concentration is at too high or too low a level.
- 2.5 *Carry out safe venting and clearance:* Standard operating procedures followed to vent and clear fumigant safely.

**3 Be able to carry out post-operational procedures following fumigation of purpose built fumigation chambers**

- 3.1 *Clean, transport and store equipment:* Application equipment and containers emptied of any remaining fumigant safely; emptied containers are packaged and labelled appropriately for later disposal as hazardous waste; application equipment inspected after cleaning for wear and damage; application equipment and packaged used containers are secured appropriately in vehicle.
- 3.2 *Dispose of fumigant residues safely:* Fumigant residues deactivated and disposed of in accordance with guidance in safety data sheets or recognised codes of practice.

**4 Be able to compile relevant documentation and reports relating to fumigation of purpose built fumigation chambers.**

- 4.1 *Produce reports relating to five different fumigations of purpose built fumigation chambers:* Reports are produced detailing operations carried out, amount and type of fumigant used, location of operations and any additional treatments or actions required.
- 4.2 *Ensure reports comply with all legislative, company and customer requirements:* Reports comply with legislative, company and customer requirements; record keeping requirements relating to fumigant use complied with and maintained appropriately.

**5 Be able to explain procedures for safe fumigation of purpose built fumigation chambers.**

- 5.1 *Reasons for pre treatment procedures:* Candidate is able to explain actions that he/she takes when carrying out pre-treatment procedures.
- 5.2 *Actions required when fumigating purpose built fumigation chambers:* Candidate is able to explain actions that he/she takes when fumigating purpose built fumigation chambers

- 5.3 *Reasons for post-operational procedures:* Candidate is able to explain actions that he/she takes when carrying out post-operational procedures.

### **Assessment for unit 7:**

Attainment of the Learning Outcomes for unit 7 will be assessed by observation and oral questioning / discussions and completion of relevant risk assessments, treatment reports and other documentation. An evidence portfolio of internally assessed work should be compiled for each candidate for submission to the External Verifier. Candidates need to provide evidence of carrying out, under supervision, **FIVE** fumigations of purpose built fumigation chambers.

Evidence for all learning outcomes for unit 7 must come from performance in an actual work environment, but candidates must be supervised at all times when carrying out fumigation operations as part of their training and assessment for these units. There must be valid, authentic and sufficient evidence for all the assessment criteria.

Assessment guidance for this unit is available in the resources section of the centre area of the web-site <http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm>.

## **Unit 8: Carry out procedures for the safe fumigation of specialist ‘fumigation bubbles’**

Guided Learning: 4 hours  
Total Unit Time: 16 hours  
Unit Level: 3  
Unit Reference No. R/507/9290

**This is an OPTION unit.**

### **Summary of Learning Outcomes:**

**To achieve this qualification a candidate must:**

- 1. Be able to carry out procedures prior to fumigation of specialist ‘fumigation bubbles’, by being able to meet the following assessment criteria:**
  - 1.1 Conduct a site survey to determine the need for and suitability of fumigation of specialist ‘fumigation bubbles’.
  - 1.2 Carry out health and safety, COSHH and environmental risk assessments for fumigation of specialist ‘fumigation bubbles’.
  - 1.3 Select and put on appropriate PPE and RPE.
  
- 2. Be able to carry out fumigation of specialist ‘fumigation bubbles’ for managing invertebrate pests, by being able to meet the following assessment criteria:**
  - 2.1 Prepare the site for application of fumigants
  - 2.2 Prepare fumigants for use
  - 2.3 Apply appropriate dosages of fumigants to manage invertebrate pests
  - 2.4 Monitor the concentration of fumigants during operations
  - 2.5 Carry out safe ventilation and clearance of specialist ‘fumigation bubbles’
  
- 3. Be able to carry out post-operational procedures following fumigation of specialist ‘fumigation bubbles’, by being able to meet the following assessment criteria:**
  - 3.1 Clean, transport and store equipment used for fumigation
  - 3.2 Dispose of fumigant residues safely
  
- 4. Be able to compile relevant documentation and reports relating to fumigation of specialist ‘fumigation bubbles’, by being able to meet the following assessment criteria:**
  - 4.1 Produce reports relating to five different fumigations of specialist ‘fumigation bubbles’.
  - 4.2 Ensure reports comply with all legislative, company and customer requirements.

**5. Be able to explain procedures for safe fumigation of specialist ‘fumigation bubbles’, by being able to meet the following assessment criteria:**

- 5.1 Explain the reasons for pre-treatment procedures when carrying out fumigation of specialist ‘fumigation bubbles’.
- 5.2 Explain the actions required when fumigating specialist ‘fumigation bubbles’
- 5.3 Explain the reasons for post-operational procedures following fumigation of specialist ‘fumigation bubbles’.

**Content:**

**1 Be able to carry out procedures prior to fumigation of specialist ‘fumigation bubbles’**

- 1.1 *Conduct a site survey:* Site survey is carried out appropriately; site checked for presence of non-target species that may affect use of fumigant; presence of any feature that may affect decision to use fumigant noted; alternative control measures considered before decision made to use fumigant.
- 1.2 *Carry out health and safety, COSHH and environmental risk assessments:* Suitable risk assessments for fumigation of specialist ‘fumigation bubbles’ carried out; hazards and risks noted; appropriate control methods and safe operating procedures proposed; environmental risk assessment considers risk of fumigant entering water courses and drains, damage to non-target species, vicinity of occupied buildings and significance of protected areas established under Articles 6 and 7 of Directive 2000/60/EC or subsequent Articles and Directives.
- 1.3 *Select and put on appropriate PPE and RPE:* Appropriate PPE and RPE for use of fumigant selected, checked for faults and worn/used correctly; cartridge of respirator checked before use.

**2 Be able to carry out fumigation of specialist ‘fumigation bubbles’ for managing invertebrate pests.**

- 2.1 *Prepare the site:* Site prepared in accordance with standard operating procedures and safe working practices; safety signs positioned appropriately; site checked for presence of non-target species.
- 2.2 *Prepare fumigants for use:* Correct fumigant used for the task; instructions on product label and manufacturers’ safety data sheets checked; fumigant prepared for use in accordance with product label and other safety instructions; correct application equipment for the product and formulation selected; application equipment loaded in accordance with manufacturer’s instructions; appropriate PPE and RPE worn throughout operation and control measures with regard to operators, other people, non-target species and the environment as stated in the risk assessment are complied with.

- 2.3 *Apply appropriate dosages of fumigant:* Fumigant applied correctly to target area; fumigant only applied in appropriate conditions and at a dosage appropriate for the size of the area treated.
- 2.4 *Monitor concentration of fumigants:* Concentration of fumigant monitored throughout operation; appropriate steps taken to vary the rate of application of the fumigant if monitoring suggests that concentration is at too high or too low a level.
- 2.5 *Carry out safe venting and clearance:* Standard operating procedures followed to vent and clear fumigant safely.

### **3 Be able to carry out post-operational procedures following fumigation of specialist 'fumigation bubbles'**

- 3.1 *Clean, transport and store equipment:* Application equipment and containers emptied of any remaining fumigant safely; emptied containers are packaged and labelled appropriately for later disposal as hazardous waste; application equipment inspected after cleaning for wear and damage; application equipment and packaged used containers are secured appropriately in vehicle.
- 3.2 *Dispose of fumigant residues safely:* Fumigant residues deactivated and disposed of in accordance with guidance in safety data sheets or recognised codes of practice.

### **4 Be able to compile relevant documentation and reports relating to fumigation of specialist 'fumigation bubbles'.**

- 4.1 *Produce reports relating to five different fumigations of specialist 'fumigation bubbles':* Reports are produced detailing operations carried out, amount and type of fumigant used, location of operations and any additional treatments or actions required.
- 4.2 *Ensure reports comply with all legislative, company and customer requirements:* Reports comply with legislative, company and customer requirements; record keeping requirements relating to fumigant use complied with and maintained appropriately.

### **5 Be able to explain procedures for safe fumigation of specialist 'fumigation bubbles'.**

- 5.1 *Reasons for pre treatment procedures:* Candidate is able to explain actions that he/she takes when carrying out pre-treatment procedures.
- 5.2 *Actions required when fumigating specialist 'fumigation bubbles':* Candidate is able to explain actions that he/she takes when fumigating purpose built fumigation chambers

- 5.3 *Reasons for post-operational procedures:* Candidate is able to explain actions that he/she takes when carrying out post-operational procedures.

**Assessment for unit 8:**

Attainment of the Learning Outcomes for unit 8 will be assessed by observation and oral questioning / discussions and completion of relevant risk assessments, treatment reports and other documentation. An evidence portfolio of internally assessed work should be compiled for each candidate for submission to the External Verifier. Candidates need to provide evidence of carrying out, under supervision, **FIVE** fumigations of specialist fumigation bubbles.

Evidence for all learning outcomes for unit 8 must come from performance in an actual work environment, but candidates must be supervised at all times when carrying out fumigation operations as part of their training and assessment for these units. There must be valid, authentic and sufficient evidence for all the assessment criteria.

Assessment guidance for this unit is available in the resources section of the centre area of the web-site <http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm>.

## Learner Guidance:

### Progression:

Learners cannot obtain this qualification unless they are already employed within the fumigation industry. Once the qualification has been obtained individuals will be able work without supervision when carrying out fumigation activities.

### Recommended Prior Learning:

Learners should have practical expertise in the management of pests. This qualification is not suitable for individuals who are new to pest management.

### Useful Websites:

The Register of Accredited Metallic Phosphide Standards in the United Kingdom

[www.ramps-uk.org/](http://www.ramps-uk.org/)

Health and Safety Executive

[www.HSE.gov.uk/](http://www.HSE.gov.uk/)

Health Protection Agency

[www.hpa.org.uk](http://www.hpa.org.uk)

### Recommended Reading:

British Pest Management

British Pest Management Manual

Defra Publications

Code of practice for using plant protection products

HSE

Fumigation: Health and safety guidance for employers and technicians carrying out fumigation operations.

Health Protection Agency

Aluminium Phosphide: General Information.

Health Protection Agency

Aluminium Phosphide: Incident Management

The Register of Accredited Metallic Phosphide Standards in the United Kingdom

The RAMPS UK Code of Good Practice

## **Centre Guidance:**

### **Fumigants to be studied:**

Centres should ensure that the following fumigants are covered during the delivery of courses for this qualification:

Phosphine

Sulfuryl fluoride

Carbon dioxide gas

Nitrogen gas

Methyl bromide (This should be covered due to the risk of candidates encountering this fumigant when opening containers or ships' holds that have entered the UK from overseas).

### **Registration of Candidates:**

Candidates must be registered with RSPH and have a candidate number before any work can be submitted for external verification.

Candidate registration forms can be downloaded from the Centre Area of the Qualifications section of the RSPH web-site

(<http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm>).

### **Assessment Requirements:**

RSPH **must** be notified of the time and venue for practical assessments at the time of registration of the candidates and at least five working days before the assessment is to take place. This is to ensure that RSPH can arrange for a spot check of the assessment activities if it decides to do so. Failure to provide this information will disqualify the candidates and no certificates will be awarded.

### **Submission of Evidence of Assessment:**

Evidence of assessment should be submitted to the external verifier with an *Evidence Portfolio Front Sheet* signed by the candidate and a completed *Candidate Assessment Summary Form* for the relevant option unit of the qualification, detailing where the evidence for each of the learning outcomes and assessment criteria can be found in the candidate's evidence portfolio. Evidence Portfolio Front Sheets and Candidate Assessment Summary Forms can be downloaded from the Centre Area of the Qualifications section of the RSPH web-site

(<http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm>). Specific and generic guidance on centre assessment is also available here.

## **Special Assessment Needs:**

Centres that have candidates with special needs should consult The Society's Reasonable Adjustments and Special Consideration Policy. This is available from the Centre Area of the Qualifications section of the RSPH web-site ([www.rsph.org.uk](http://www.rsph.org.uk)).

## **How to apply to offer this qualification:**

To become a centre approved to offer this qualification, please complete the 'Centre Application Form' and the Supplementary Application Information Form for this qualification which can be found on our website in the Qualifications and Training section <http://www.rsph.org.uk/en/qualifications/qualifications/i-want-to-become-a-rsph-registered-centre.cfm> . If you are already an approved centre, please complete the 'Add an additional qualification form' in the Centre area on the website <http://www.rsph.org.uk/en/qualifications/qualifications/centre-area/index.cfm> and the Supplementary Application Information Form. The Supplementary Application Information Form requires the centre to submit details of the training and experience of all centre tutors and assessors in the relevant fumigation operations for the option units. Please ensure that you include details of your quality assurance procedures. You will need to attach a CV to this application. Please contact the Qualifications Department at [centreapproval@rsph.org.uk](mailto:centreapproval@rsph.org.uk) if you need any assistance.

## **Recommended Qualifications and Experience of Tutors and Assessors:**

RSPH recommends that tutors and assessors have teaching experience and a qualification in a relevant subject area, but recognises that experienced teachers can often compensate for a lack of initial subject knowledge, or experienced practitioners for a lack of teaching experience. Verifiable experience of the fumigation operations for the relevant option units is an essential requirement for tutors and assessors. Tutors and assessors will be expected to have received training in the required fumigation methods.

## **Other Information:**

All RSPH specifications are subject to review. Any changes to the assessment or learning outcomes will be notified to Centres in advance of their introduction. To check the currency of this version of the specification, please contact the Qualifications Department or consult the RSPH website.

Centres must be registered with RSPH.

Any enquiries about this qualification should be made to:

The Qualifications Department,  
Royal Society for Public Health,  
John Snow House,  
59 Mansell Street,  
London E1 8AN

Tel: 020 7265 7300  
Fax: 020 7265 7301  
Email: [info@rsph.org.uk](mailto:info@rsph.org.uk)  
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