ANNEX I

SUMMARY OF PRODUCT CHARACTERISTICS

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Poulvac E. coli lyophilisate for suspension for spray vaccination for chickens and turkeys or for use in drinking water for chickens

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

One dose contains:

Active substance:
Live aroA gene deleted *Escherichia coli*, type O78, strain EC34195 5.2×10^6 - 9.1×10^8 CFU*

* Colony forming units when grown on tryptic soy agar plates.

For the full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

Lyophilisate for suspension for spray vaccination or for use in drinking water.

Cream coloured lyophilisate.

4. CLINICAL PARTICULARS

4.1 Target species

Chickens (broilers, future layers/breeders) and turkeys.

4.2 Indications for use, specifying the target species

For active immunisation of broiler chickens, future layer/breeders and turkeys in order to reduce mortality and lesions (pericarditis, perihepatitis, airsacculitis) associated with *Escherichia coli* serotype O78.

Onset of immunity:
Chickens: 2 weeks after vaccination for the reduction of lesions. The onset of immunity has not been established for the mortality claim.
Turkeys: 3 weeks after second vaccination for the reduction of lesions and mortality.
Duration of immunity:
Chickens: 8 weeks for the reduction of lesions and 12 weeks for the reduction of mortality (spray). 12 weeks for the reduction of lesions and mortality (drinking water).
Turkeys: duration of immunity has not been established.

A cross protection study showed reduction of incidence and severity of airsacculitis caused by *E. coli* serotypes O1, O2 and O18 for spray application for chickens. For these serotypes no onset of immunity or duration of immunity was established.

4.3 Contraindications

Do not vaccinate animals undergoing antibacterial or immunosuppressive treatment.

4.4 Special warnings for each target species

Vaccinate healthy birds only.

Do not use antibiotic treatment within 1 week before and after vaccination because antibiotic treatment might impair the efficacy of the vaccine.

No information is available on the influence of high levels of maternally derived antibodies on the efficacy.

4.5 Special precautions for use

Special precautions for use in animals

The vaccine strain can be detected in tissues (liver, heart) until 6 days (chickens) or in tissues (thoracic air sacs) 4 days (turkeys) post vaccination. Vaccinated birds may excrete the vaccine strain by faecal route for up to 5 weeks (chickens) or 7 days (turkeys) post vaccination and the vaccine may remain present in the environment until the end of the finishing or rearing period (chickens) or for 7 days (turkeys).

Therefore, it is recommended to clean and disinfect bird houses where the vaccine was applied after completion of the finishing or rearing period.
The vaccine strain may spread to in-contact birds. The vaccine strain can be identified by its growth properties on biological growth media: it shows normal growth on MacConkey and trypticase soy agar, while no colonies are observed when plated without aromatic amino acids (minimum agar).

Special precautions to be taken by the person administering the veterinary medicinal product to animals

Apply the usual aseptic precautions to all administration procedures.
The use of eye-protection, gloves and a nose-mouth mask by the operator is recommended during administration. Immunosuppressed people should not be present during administration of the vaccine.
Disinfect hands and equipment after use.
Personnel involved in attending vaccinated animals should follow general hygiene principals and take particular care in handling litter from recently vaccinated animals.

Other precautions
Immunisation has to be considered as one component in a complex control program that addresses all important hygienic and health factors for poultry.

4.6 Adverse reactions (frequency and seriousness)

None known.

4.7 Use during pregnancy, lactation or lay

Do not use in birds in lay, or within 6 weeks of the start of the laying period.

4.8 Interaction with other medicinal products and other forms of interaction

No information is available on the safety and efficacy of this vaccine when used with any other veterinary medicinal product. A decision to use this vaccine before or after any other veterinary medicinal product therefore needs to be made on a case by case basis.

4.9 Amounts to be administered and administration route

Coarse spray administration for chickens / turkeys or in drinking water use for chickens.

Upon reconstitution, transparent to white-yellowish and opaque suspension (depending on the volume of diluent used).

Vaccination schedule

Chickens: One dose of vaccine from 1 day of age by coarse spray administration or one dose of vaccine from 5 days of age by drinking water administration.
Turkeys: One dose of vaccine from 1 day of age followed by second dose of vaccine 3 weeks later by coarse spray administration.

Administration

Spray application:
Use clean vaccination materials and turn off ventilation until 15 minutes after vaccination.

Remove seal and stopper. Half-fill the vial with chlorine-free water at room temperature. Replace the stopper and shake well until dissolved. Pour the reconstituted vaccine into a clean container and add chlorine-free water to further dilute the vaccine in order to obtain an even distribution when sprayed onto the birds.
No disinfectants or other substances impairing the performance of the live vaccine should be used in the sprayer.
Dilute and administer the reconstituted vaccine at a rate of one dose of reconstituted vaccine per bird, according to the directions of your specific coarse spray vaccination equipment. The recommended volume for 1 dose is between 0.1 and 0.5 ml. The spraying distance should be between 30 and 80 cm above the animals in order to ensure an even distribution and the recommended droplet size is greater than 100 µm.

In drinking water use:
Make sure that all conduit pipes, tubing, troughs, drinkers etc. are thoroughly clean and free of any trace of disinfectants, detergents, soap, etc. and antibiotics. Contact with disinfectants makes the vaccine ineffective.

Allow water to be consumed so that levels of drinkers are minimal before vaccine is applied. All tubing should be emptied of plain water, so that the drinkers contain only vaccine water.

It may be necessary to withhold water prior to vaccination in order to ensure that all birds drink during the vaccination period.

Open the vaccine vial under water and dissolve thoroughly in a container. Care should be taken to empty the vial and its top completely by rinsing them in water. Do not split large vials to vaccinate more than 1 house or drinking system, as this may lead to mixing errors.

Use cold and fresh non-chlorinated water that is free from metal-ions. Low-fat skimmed milk powder (i.e. < 1% fat) may be added to the water (2–4 grams per litre) or skimmed milk (20–40 ml per litre of water) to improve the water quality and to increase the stability of the bacteria.

Ideally, vaccine should be administered in the volume of water consumed by the birds in up to 3 hours. The aim is to give every bird one dose of vaccine. As a general rule, apply reconstituted vaccine to chlorine-free and fresh water at the rate of 1,000 doses of the vaccine to 1 litre of water per day of age for 1,000 chickens, e.g. 10 litres would be needed for 1,000 10-day old chickens. If in doubt, measure water intake the day before administering vaccine.

Administer the dissolved vaccine to birds immediately after reconstitution.
Avoid exposure of the vaccine suspension to sunlight.

4.10 Overdose (symptoms, emergency procedures, antidotes), if necessary

No adverse reactions have been observed after the administration of a 10 fold overdose of the vaccine.

4.11 Withdrawal period(s)

Zero days.

5. IMMUNOLOGICAL PROPERTIES

Pharmacotherapeutic group: Immunologicals for aves, live bacterial vaccines for domestic fowl.
ATCvet code: QI01AE04.

To stimulate active immunity to *Escherichia coli* serotype O78.

6. PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Sucrose
Ammonium sulphate
Magnesium sulphate heptahydrate
Potassium phosphate monobasic
Sodium phosphate dibasic heptahydrate

6.2 Major incompatibilities

Do not mix with any other veterinary medicinal product.

6.3 Shelf life

Shelf life of the veterinary medicinal product as package for sale: 30 months.
Shelf life after reconstitution according to directions: 2 hours.

6.4 Special precautions for storage

Store and transport refrigerated (2 °C – 8 °C). Do not freeze.
Keep the vial in the outer carton in order to protect from light.

6.5 Nature and composition of immediate packaging

Type I borosilicate glass vial of 10 ml for 2,500 and 5,000 dose-presentations and 50 ml for 10,000 and 20,000 dose-presentations with a bromobutyl rubber stopper sealed with aluminium crimp caps.
Cardboard box of one vial of 2,500, 5,000, 10,000 or 20,000 doses.
Cardboard box of ten vials of 2,500, 5,000, 10,000 or 20,000 doses.

Not all pack sizes may be marketed.

6.6 Special precautions for the disposal of unused veterinary medicinal product or waste materials derived from the use of such products

Any unused veterinary medicinal product or waste materials derived from such veterinary medicinal product should be disposed of in accordance with local requirements.

7. MARKETING AUTHORISATION HOLDER

Zoetis Belgium SA
Rue Laid Burniat 1
1348 Louvain-la-Neuve
BELGIUM

8. MARKETING AUTHORISATION NUMBER(S)

EU/2/12/140/001-008

9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

Date of first authorisation: 15/06/2012.
Date of latest renewal: 15/05/2017.

10. DATE OF REVISION OF THE TEXT

Detailed information on this veterinary medicinal product is available on the website of the European Medicines Agency (http://www.ema.europa.eu/).

PROHIBITION OF SALE, SUPPLY AND/OR USE

Not applicable.

ANNEX II

A. MANUFACTURER OF THE BIOLOGICAL ACTIVE SUBSTANCE AND MANUFACTURER RESPONSIBLE FOR BATCH RELEASE

B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE

C. STATEMENT OF THE MRLs

A. MANUFACTURER OF THE BIOLOGICAL ACTIVE SUBSTANCE AND MANUFACTURER RESPONSIBLE FOR BATCH RELEASE

Name and address of the manufacturer of the biological active substance
Zoetis Inc.
2000 Rockford Road, Charles City
IA 50616
USA

Name and address of the manufacturer responsible for batch release
Zoetis Manufacturing & Research Spain, S.L.
Ctra. Camprodón s/n "la Riba"
17813 Vall de Bianya
Girona
SPAIN

B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE

Veterinary medicinal product subject to prescription.

C. STATEMENT OF THE MRLs

The active substance being a principle of biological origin intended to produce active immunity is not within the scope of Regulation (EC) No 470/2009.

The excipients (including adjuvants) listed in section 6.1 of the SPC are either allowed substances for which table 1 of the annex to Commission Regulation (EU) No 37/2010 indicates that no MRLs are required or considered as not falling within the scope of Regulation (EC) No 470/2009 when used as in this veterinary medicinal product.

ANNEX III

LABELLING AND PACKAGE LEAFLET

A. LABELLING

PARTICULARS TO APPEAR ON THE OUTER PACKAGE

Cardboard box of one vial of 2,500 or 5,000 or 10,000 or 20,000 doses
Cardboard box of ten vials of 2,500 or 5,000 or 10,000 or 20,000 doses

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Poulvac E. coli lyophilisate for suspension for spray vaccination for chickens and turkeys or for use in drinking water for chickens

2. STATEMENT OF ACTIVE SUBSTANCES

Active substance:
Live aroA gene deleted *Escherichia coli*, type O78, 5.2×10^6 - 9.1×10^8 CFU/ds

3. PHARMACEUTICAL FORM

Lyophilisate for suspension for spray vaccination or for use in drinking water

4. PACKAGE SIZE

1 x 2,500 doses, 10 x 2,500 doses
1 x 5,000 doses, 10 x 5,000 doses
1 x 10,000 doses, 10 x 10,000 doses
1 x 20,000 doses, 10 x 20,000 doses

5. TARGET SPECIES

Chickens and turkeys

6. INDICATION(S)

7. METHOD AND ROUTE(S) OF ADMINISTRATION

Spray vaccination or for use in drinking water.
Read the package leaflet before use.

8. WITHDRAWAL PERIOD(S)

Withdrawal period: 0 days.

9. SPECIAL WARNING(S), IF NECESSARY

10. EXPIRY DATE

EXP {month/year}
Once reconstituted use within 2 hours.

11. SPECIAL STORAGE CONDITIONS

Store and transport refrigerated.
Do not freeze. Protect from light.

12. SPECIFIC PRECAUTIONS FOR THE DISPOSAL OF UNUSED PRODUCTS OR WASTE MATERIALS, IF ANY

Disposal: read package leaflet.

13. THE WORDS "FOR ANIMAL TREATMENT ONLY" AND CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE, IF APPLICABLE

For animal treatment only. To be supplied only on veterinary prescription.

14. THE WORDS "KEEP OUT OF THE SIGHT AND REACH OF CHILDREN"

Keep out of the sight and reach of children.

15. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER

Zoetis Belgium SA
Rue Laid Burniat 1
1348 Louvain-la-Neuve
BELGIUM

16. MARKETING AUTHORISATION NUMBER(S)

EU/2/12/140/001
EU/2/12/140/002
EU/2/12/140/003
EU/2/12/140/004
EU/2/12/140/005
EU/2/12/140/006
EU/2/12/140/007
EU/2/12/140/008

17. MANUFACTURER'S BATCH NUMBER

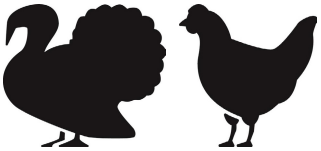
Lot{number}

MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS

GLASS VIAL
1/10 x 2,500, 5,000, 10,000, 20,000 doses

1. NAME OF THE VETERINARY MEDICINAL PRODUCT

Poulvac E. coli lyophilisate for suspension for spray vaccination or for use in drinking water



2. QUANTITY OF THE ACTIVE SUBSTANCE(S)

Live *E. coli*: 5.2×10^6 - 9.1×10^8 CFU/dose

3. CONTENTS BY WEIGHT, BY VOLUME OR BY NUMBER OF DOSES

2,500 doses
5,000 doses
10,000 doses
20,000 doses

4. ROUTE(S) OF ADMINISTRATION

Spray vaccination or in drinking water use.

5. WITHDRAWAL PERIOD(S)

Withdrawal period: 0 days.

6. BATCH NUMBER

Lot {number}

7. EXPIRY DATE

EXP {month/year}

8. THE WORDS "FOR ANIMAL TREATMENT ONLY"

For animal treatment only.

B. PACKAGE LEAFLET

PACKAGE LEAFLET
Poulvac E. coli lyophilisate for suspension for spray vaccination for chickens and turkeys or for use in drinking water for chickens

1. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER AND OF THE MANUFACTURING AUTHORISATION HOLDER RESPONSIBLE FOR BATCH RELEASE, IF DIFFERENT

Marketing authorisation holder:
Zoetis Belgium SA
Rue Laid Burniat 1
1348 Louvain-la-Neuve
BELGIUM

Manufacturer responsible for batch release:
Zoetis Manufacturing & Research Spain, S.L.
Ctra. Camprodón s/n "la Riba"
17813 Vall de Bianya
Girona
SPAIN

2. NAME OF THE VETERINARY MEDICINAL PRODUCT

Poulvac E. coli lyophilisate for suspension for spray vaccination for chickens and turkeys or for use in drinking water for chickens

3. STATEMENT OF THE ACTIVE SUBSTANCE(S) AND OTHER INGREDIENT(S)

One dose contains:
Live aroA gene deleted *Escherichia coli*, type O78, strain EC34195 5.2×10^6 - 9.1×10^8 CFU*

* Colony forming units when grown on tryptic soy agar plates.

Cream coloured lyophilisate.
Upon reconstitution, transparent to white-yellowish and opaque suspension (depending on the volume of diluent used).

4. INDICATION(S)

For active immunisation of broiler chickens, future layer/breeders and turkeys in order to reduce mortality and lesions (pericarditis, perihepatitis, airsacculitis) associated with *Escherichia coli* serotype O78.

Onset of immunity:
Chickens: 2 weeks after vaccination for the reduction of lesions. The onset of immunity has not been established for the mortality claim.
Turkeys: 3 weeks after second vaccination for the reduction of lesions and mortality.
Duration of immunity:
Chickens: 8 weeks for the reduction of lesions and 12 weeks for the reduction of mortality (spray).
12 weeks for the reduction of lesions and mortality (drinking water).
Turkeys: duration of immunity has not been established.

A cross protection study showed reduction of incidence and severity of airsacculitis caused by *E. coli* serotypes O1, O2 and O18 for spray application for chickens. For these serotypes no onset of immunity or duration of immunity was established.

5. CONTRAINDICATIONS

Do not vaccinate animals undergoing antibacterial or immunosuppressive treatment.

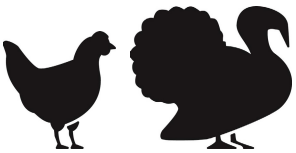
6. ADVERSE REACTIONS

None.

If you notice any serious effects or other effects not mentioned in this package leaflet, please inform your veterinary surgeon.

7. TARGET SPECIES

Chickens (broilers, future layers/breeders) and turkeys



8. DOSAGE FOR EACH SPECIES, ROUTE(S) AND METHOD OF ADMINISTRATION

Chickens: One dose of vaccine from 1 day of age by coarse spray or from 5 days of age by drinking water administration.
Turkeys: One dose of vaccine from 1 day of age followed by a second dose of vaccine 3 weeks later by coarse spray administration.

9. ADVICE ON CORRECT ADMINISTRATION

Coarse spray administration for chickens and turkeys or in drinking water use for chickens.

Spray application:
Use clean vaccination materials and turn off ventilation until 15 minutes after vaccination.

Remove seal and stopper. Half-fill the vial with chlorine-free water at room temperature. Replace the stopper and shake well until dissolved. Pour the reconstituted vaccine into a clean container and add chlorine-free water to further dilute the vaccine in order to obtain an even distribution when sprayed onto the birds.
No disinfectants or other substances impairing the performance of the live vaccine should be used in the sprayer.

Dilute and administer the reconstituted vaccine at a rate of one dose of reconstituted vaccine per bird, according to the directions of your specific coarse spray vaccination equipment. The recommended volume for 1 dose is between 0.1 and 0.5 ml. The spraying distance should be between 30 and 80 cm above the animals in order to ensure an even distribution and the recommended droplet size is greater than 100 µm.

In drinking water use:
Make sure that all conduit pipes, tubing, troughs, drinkers etc. are thoroughly clean and free of any trace of disinfectants, detergents, soap, etc. and antibiotics. Contact with disinfectants makes the vaccine ineffective.

Allow water to be consumed so that levels of drinkers are minimal before vaccine is applied. All tubing should be emptied of plain water, so that the drinkers contain only vaccine water.

It may be necessary to withhold water prior to vaccination in order to ensure that all birds drink during the vaccination period.

Open the vaccine vial under water and dissolve thoroughly in a container. Care should be taken to empty the vial and its top completely by rinsing them in water. Do not split large vials to vaccinate more than 1 house or drinking system, as this may lead to mixing errors.

Use cold and fresh non-chlorinated water that is free from metal-ions. Low-fat skimmed milk powder (i.e. < 1% fat) may be added to the water (2-4 grams per litre) or skimmed milk (20-40 ml per litre of water) to improve the water quality and to increase the stability of the bacteria.

Ideally, vaccine should be administered in the volume of water consumed by the birds in up to 3 hours. The aim is to give every bird one dose of vaccine. As a general rule, apply reconstituted vaccine to chlorine-free and fresh water at the rate of 1,000 doses of the vaccine to 1 litre of water per day of age for 1,000 chickens, e.g. 10 litres would be needed for 1,000 10-day old chickens. If in doubt, measure the water intake the day before administering vaccine.

Administer the dissolved vaccine to birds immediately after reconstitution.
Avoid exposure of the vaccine suspension to sunlight.

10. WITHDRAWAL PERIOD(S)

Zero days.

11. SPECIAL STORAGE PRECAUTIONS

Keep out of the sight and reach of children.

Store and transport refrigerated (2°C - 8°C). Do not freeze.
Keep the vial in the outer carton in order to protect from light.

Do not use this veterinary medicinal product after the expiry date which is stated on the vial.
Shelf life after reconstitution according to directions: 2 hours.

12. SPECIAL WARNING(S)

Special warnings for each target species:
Only vaccinate healthy birds.
Do not use antibiotic treatment within 1 week before and after vaccination because antibiotic treatment might impair the efficacy of the vaccine.
No information is available on the influence of high levels of maternally derived antibodies on the efficacy.

Special precautions for use in animals:
The vaccine strain can be detected in tissues (liver, heart) until 6 days (chickens) or in tissues (thoracic air sacs) until 4 days (turkeys) post vaccination. Vaccinated birds may excrete the vaccine strain by

faecal route for up to 5 weeks (chickens) or 7 days (turkeys) post vaccination and the vaccine may remain present in the environment until the end of the finishing or rearing period (chickens) or for 7 days (turkeys). Therefore, it is recommended to clean and disinfect bird houses where the vaccine was applied after completion of the finishing or rearing period.
The vaccine strain may spread to in-contact birds. The vaccine strain can be identified by its growth properties on biological growth media: it shows normal growth on MacConkey and trypticase soy agar, while no colonies are observed when plated without aromatic amino acids (minimum agar).

Special precautions to be taken by the person administering the veterinary medicinal product to animals:
Apply the usual aseptic precautions to all administration procedures.
The use of eye-protection, gloves and a nose-mouth mask by the operator is advised during administration. Immunosuppressed people should not be present during administration of the vaccine.
Disinfect hands and equipment after use.
Personnel involved in attending vaccinated animals should follow general hygiene principals and take particular care in handling litter from recently vaccinated animals.

Other precautions:
Immunisation has to be considered as one component in a complex control program that addresses all important hygienic and health factors for poultry.

Lay:
Do not use in birds in lay, or within 6 weeks of the start of the laying period.

Interaction with other medicinal products and other forms of interaction:
No information is available on the safety and efficacy of this vaccine when used with any other veterinary medicinal product. A decision to use this vaccine before or after any other veterinary medicinal product therefore needs to be made on a case by case basis.

Overdose (symptoms, emergency procedures, antidotes):
No adverse reactions have been observed after the administration of a 10 fold overdose of the vaccine.

Incompatibilities:
Do not mix with any other veterinary medicinal product.

13. SPECIAL PRECAUTIONS FOR THE DISPOSAL OF UNUSED PRODUCT OR WASTE MATERIALS, IF ANY

Ask your veterinary surgeon how to dispose of medicines no longer required. These measures should help to protect the environment.

14. DATE ON WHICH THE PACKAGE LEAFLET WAS LAST APPROVED

Detailed information on this veterinary medicinal product is available on the website of the European Medicines Agency (http://www.ema.europa.eu/).

15. OTHER INFORMATION

The vaccine is supplied in type I borosilicate glass vial of 10 ml or 50 ml with a bromobutyl rubber stopper sealed with aluminium crimp caps.
Cardboard box of one vial of 2,500, 5,000, 10,000 or 20,000 doses.
Cardboard box of ten vials of 2,500, 5,000, 10,000 or 20,000 doses.

Not all pack sizes may be marketed.