Hydrolysed proteins

DOCUMENT N1

OVERALL CONCLUSIONS

Version history[1]

Date	Data points containing amendments or additions and brief description	Document identifier and version number

[1] It is suggested that applicants adopt a similar approach to showing revisions and version history as outlined in SANCO/10180/2013 Chapter 4 How to revise an Assessment Report

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1 IDENTITY

1.1 Summary of identity

***Guidance adapted from SANCO/12592/2012 (Template Assessment Report)**:*
Any issues related to e.g. impurities, isomers, pilot plant, full scale production should be listed here.

Common name proposed or ISO-accepted and synonyms

Hydrolysed proteins

Chemical name (IUPAC and CA nomenclature)

IUPAC: not applicable

CA: not applicable

Development code numbers

None

CAS, EC and CIPAC numbers

CAS: not applicable

EC: not applicable

CIPAC: not applicable

Molecular and structural formulae, molecular mass

Molecular Formula: not applicable

Structural Formula: not applicable

Method of manufacture (synthesis pathway) of the active substance

CONFIDENTIAL information - data provided separately (Document J)

Specification of purity of the active substance in g/kg

CONFIDENTIAL information - data provided separately (Document J)

Identity and content of additives (such as stabilisers) and impurities

CONFIDENTIAL information - data provided separately (Document J)

Analytical profile of batches

CONFIDENTIAL information - data provided separately (Document J)

2 PHYSICAL AND CHEMICAL PROPERTIES

2.1 Summary of physical and chemical properties of the active substance

Test or Study & Data Point	Findings
Melting point, boiling point	Melting point : < 4°C Boiling point : > 100 °C
Appearance (Physical state, colour)	Brown coloured liquid
Spectra (UV/VIS, IR, NMR, MS), molar extinction at relevant wavelengths, optical purity	IR spectra: enlarged absorption bands in the range 3260-2940 cm^{-1}, bands at cm^{-1} 1630 (s,l), 1580 (s,l), 1455 (w), 1395 (s) l=large, s=sharp, w=weak
Solubility in water	Total in water
Solubility in organic solvents	Insoluble in the common organic solvents
Surface tension	36,5 mN/m

2.2 Summary of physical and chemical properties of the plant protection product

Test or study & Data point	Findings
Appearance	Brown liquid, average viscosity, undefined smell
Explosive and oxidising properties	The product has no explosive properties
Flammability and self-heating	Flammability point > 100°C. The formulated product is not flammable (water based)
Acidity/alkalinity and pH value	Neat form. pH= 6.83 1% dil. pH= 6.66
Viscosity and surface tension	Pure: 37.9 mN/m 1g/L: 53.5 mN/m
Relative density and bulk density	Relative density: 20°C 1.245 g/mL Relative density: 40°C: 1.235g /mL
Storage Stability and shelf-life: effects of temperature on technical characteristics of the plant protection product	The physical-chemical properties investigated before and after accelerated storage and after low temperature storage stability tests are comparable. The physical-chemical properties investigated before and after 1 year of storage stability test are comparable.
Wettability	Not applicable
Persistence of foaming	After 10'': 70 mL After 1': 24 mL After 3': 4 ml After 12': 0 ml
Suspensibility, spontaneity and dispersion stability	Not applicable

Test or study & Data point	Findings
Degree of dissolution and dilution stability	Not applicable
Particle size distribution	Not applicable as NUTREL is a soluble liquid.
Dust content	Not applicable as NUTREL is a soluble liquid.
Attrition	Not applicable
Hardness and integrity	Not applicable
Emulsifiability, re-emulsifiability, emulsion stability	Not applicable
Flowability, pourability and dustability	Not applicable
Physical and chemical compatibility with other products including other plant protection products with which its use is to be authorised	The product is compatible with the majority of insecticides and plant protection products, with the exclusion of mineral oils and nitro-derivatives
Adherence and distribution to seeds	Not applicable
Other studies	Not available

3 DATA ON APPLICATION AND EFFICACY

Guidance adapted from SANCO/12592/2012 (Template Assessment Report):
For efficacy it is intended that limited summary information is placed under each of the headings here to address the requirements of Article 4(3) of Regulation (EC) No 1107/2009. The information should be in line with the relevant guidance:

– for new active substances "SANCO E3 WORKING DOCUMENT (Data requirements on efficacy for the dossier to be submitted for the approval of new active substances as defined under Regulation (EC) No 1107/2009 contained in plant protection products)";
- for renewals - Guidance Document on the renewal of approval of active substances to be assessed in compliance with Regulation (EU) No 844/2012 Appendix II (SANCO/2012/11251).

3.1 Summary of effectiveness

The adult females of Diptera (fruit flies), before the egg laying, need a feeding period with proteins. During this time, NUTREL applications in mixture with an authorized insecticide (e.g.: dimethoate, fenthion), allow the control of the adults before they lay the eggs, so reducing the damage caused by the larvae.

Nutrel shows a high attractant power and selectivity towards adult Diptera and allows also to diminish the dosage per ha of utilised insecticide.

3.2 Summary of information on the development of resistance

None

3.3 Summary of adverse effects on treated crops

None

3.4 Summary of observations on other undesirable or unintended side-effects

None

4 FURTHER INFORMATION

4.1 Summary of methods and precautions concerning handling, storage, transport or fire

Good industrial practice in housekeeping and personal hygiene should be followed. Avoid contact with eyes skin and clothing. When using do not eat, drink or smoke. Wash hands thoroughly after handling. Store only in original container.
Obey to reasonable safety precautions and practises, according to good hygiene and manufacturing procedures..
Store the product in clean and suitable sealed containers in suitable places in order to maintain unchanged the original characteristics of the product.
The product does not contain preservatives and it is stable if stored undiluted in closed and clean containers and handled in the suggested conditions. Avoid the product storage in open containers and stock the product avoiding temperature > 30°C and< 4°C for the difficult handling due to the increased viscosity.A slight sediment may be present without prejudicing the quality of the product.

Transport:
The product is not subjected to specific indications.

Fire:
The product is not inflammable.
Appropriate extinguishing media:
Take into account the materials present in its vicinity. In the case of fire due to nearby materials, water, foam, dry chemicals or carbon dioxide can be used. Evaluate the compatibility with any other substance present where the fire is located. Use the adequate extinguish media on the basis of the specific situation.
Unsuitable extinguishing media: None known
Special hazards arising from the mixture:
In case of fire due to nearby materials, the product could release toxic gases(sulfur dioxide, nitrogen oxides, carbon monoxide, carbon dioxide) and pungent and stifling smokes.
Advice for firefighters
General information
Cool the containers with water. Coordinate extinguishing measures taking into account local and environment circumstances.
Equipment
Wear equipment provided with fire-fighting protection devices.Use respiratory protection equipment that supplies air from an independent source (auto-respirator EN 137),suitable protective gloves(EN 659), suitable protective clothing(EN 469) and fire-fighter boots(HO A29 or A30).
Other information
Avoid to flush the water used for the extinguishing in surface-water/drains. If this occurs, notify to competent authorities. Contain and collect water used for fire extinguishing and fire residues in accordance with legislation in force.

4.2 Summary of procedures for destruction or decontamination

Hydrolysed proteins are completely biodegradable. The same product is also used as fertiliser and doesn't cause negative alterations of the environment, when utilised with the appropriate precaution.
No particular procedure is provided for.

4.3 Summary of emergency measures in case of an accident

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Obey reasonable safety precautions using gloves, goggles and suitable protective clothing and practice in accordance with the rules of hygiene and good working practice taking precautionary measures against the formation of inhalable aerosol/dust. Provide adequate ventilation.

For emergency responders

Obey reasonable safety precautions using gloves, goggles and suitable protective clothing and practice in accordance with the rules of hygiene and good working practice taking precautionary measures against the formation of inhalable aerosol/dust. Provide adequate ventilation.

Environment precautionary measures

Collect the product for the re-use how much is possible and limit the pouring area; do not introduce the product and waste into sewage and surface water but into sewage facilities that feed a biological waste water treatment plant. Avoid to pollute other growings, foods and beverages.

Methods and material for containment and cleaning up

Recovery: Contain spillage, pick up with absorbent non-combustible material (eg sand, earth, diatomaceous earth, vermiculite) and transfer to suitable container for disposal in accordance with local and national regulations. Decontamination/cleaning: Wash the affected area at the spill with water, collect the water used in suitable containers and dispose of in accordance with the provisions of the law. Disposal of the collected materials: Dispose of in accordance with local and national legislation in force. Other information: The product and the materials containing them, may cause slippery surfaces.

5 METHODS OF ANALYSIS

5.1 Methods used for the generation of pre-authorisation data

5.1.1 Analysis of the active substance as manufactured

Principle: The determination of organic nitrogen is made subtracting the ammonium nitrogen content to total nitrogen content.
The method of determination of total nitrogen provides for the sample digestion with sulphuric acid at high temperatures using copper sulfate as catalyst to convert organic nitrogen to ammonia, which is distilled after alkalinization into a boric acid solution. The concentration is determined by acid-base titration(nitrogen determination according to Kjeldahl method).
The method of ammonium nitrogen determination provides for the ammonia distillation from a solution buffered at pH=7,4 into a boric acid solution. The concentration is determined by acid-base titration.

5.1.2 Formulation analysis

DETERMINATION OF SACCHARIDES

Principle: for the determination of the saccharides the method MP-1114 rev. 0

5.1.3 Methods for Risk Assessment

Not required

Plants and plant products

Food of animal origin

Soil

Water

Air

5.2 Methods for post-authorisation control and monitoring purposes

Not required

Plants and plant products

Food of animal origin

Soil

Water

Air

6 IMPACT ON HUMAN AND ANIMAL HEALTH

6.1 Effects Having Relevance to Human and Animal Health

6.1.1 Summary of adsorption, distribution, metabolism and excretion

6.1.2 Summary of acute toxicity

Oral toxicity: the product is not toxic- not oral noxious

Dermal toxicity: the product is not toxic- not dermal noxious

Inhalation toxicity: study not required

Skin irritation: the product is not irritant for the skin

Eye irritation: the product is not irritant for eyes

Skin sensitization: the product is not sensitizing

6.1.3 Summary of short-term toxicity

No study submitted

6.1.4 Summary of genotoxicity

No study submitted

6.1.5 Summary of long-term toxicity and carcinogenicity

No study submitted

6.1.6 Summary of reproductive toxicity

No study submitted

6.1.7 Summary of neurotoxicity

No study submitted

6.1.8 Summary of further toxicological studies on the active substance

No study submitted

Guidance adapted from SANCO/12592/2012 (Template Assessment Report):
- supplementary studies on the active substance;
- endocrine disrupting properties.

6.1.9 Summary of toxicological data on impurities and metabolites

No impurities and metabolites with toxicological relevance. No study has been submitted.

6.1.10 Summary of medical data and information

No medical data have been collected on humans.

No remarkable particular symptoms and effects of poisoning are expected.

Proposed treatment: first aid measures, antidotes, medical treatment:

- After inhalation: If breathed, move person from danger area and provide for fresh air and seek medical advice. If not breathing give artificial respiration.
- After skin contact: Wash with water.

- After eye contact: Rinse with copious quantities of clean water keeping the eyelids well open in order to assure an adequate rinsing and seek medical advice.

- After swallowing: Rinse out the mouth with copious quantity of water and seek medical advice. Never give anything by mouth to an unconscious person.

- Self-protection of the first aider: Follow good working practice. No remarkable particular indication.

- indication of any immediate medical attention and special treatment needed: No remarkable particular indication.

6.2 Toxicological end point for assessment of risk following long-term dietary exposure – ADI

End-Point	Value	Study	Safety factor
Acceptable Daily Intake (ADI)	- mg/kg bw/d	No data available	/

6.3 Toxicological end point for assessment of risk following acute dietary exposure - ARfD (acute reference dose)

End-Point	Value	Study	Safety factor
Acute Reference Dose (ARfD)	- mg/kg bw/d	No data available	/

6.4 Toxicological end point for assessment of occupational, bystander and residents risks – AOEL

End-Point	Value	Study	Safety factor
Acceptable Operator Exposure Level-(AOEL)	-	No data available	/

6.5 Summary of product exposure and risk assessment

6.5.1 Bystander and resident exposure

Estimates of bystander and resident exposure have not been performed. Nevertheless, no risk is anticipated for the bystanders and residents in the areas of application of the plant protection product NUTREL

6.5.2 Workers

The use of the product by normal volume spraying of high pressure in combination with and insecticide and the use into suitable containers for the trapping of flies are considered safe for the operator, based on lack of any significant toxicity potential of the formulation and since use of suitable gloves, clothing and suitable respiratory protective equipment is recommended. Estimates and measurements of worker exposure have not been performed.

7 RESIDUES

7.1 Summary of storage stability of residues

Not applicable

7.2 Summary of metabolism, distribution and expression of residues in plants, poultry, lactating ruminants, pigs and fish

Not required

7.3 Definition of the residue

No residue definition

7.4 Summary of residue trials in plants and identification of critical GAP

Residues studies in plants are not considered necessary

7.5 Summary of feeding studies in poultry, ruminants, pigs and fish

Studies in poultry, ruminants, pigs and fish are not considered necessary.

7.6 Summary of effects of processing

Hydrolysed proteins are completely biodegradable. Residues are not expected to be found in harvested products.

7.7 Summary of residues in rotational crops

There is no risk for significant residues of Hydrolysed proteins in succeeding crops given the rapid degradation of this substance in soil. Therefore no studies are required.

7.8 Summary of other studies

No studies required.

7.9 Estimation of the potential and actual exposure through diet and other sources

No data available

7.10 Proposed MRLs and compliance with existing MRLs

No MRLs

7.11 Proposed import tolerances and compliance with existing import tolerances

None

8 FATE AND BEHAVIOUR IN THE ENVIRONMENT

The product does not cause negative transformations in the environment if it is used following the suggested dosages and conditions. Hydrolysed proteins are completely biodegradable; reasonably there are not negative effects on the environment and their persistence in the environment is very short, without existing any tendency to bioaccumulation. Anyway, if present in copious quantities can pollute ground and surface water: it is necessary to prevent concentrated product form penetrating into ground and surface waters. The product is constituted by natural substances and consequently is completely biodegradable.

8.1 Summary of fate and behaviour in soil

The product is constituted by natural substances and consequently is completely degradable.
Investigation of the route of degradation of Hydrolysed proteins did not show any metabolite needing further consideration with respect to soil or groundwater contamination.

8.2 Summary of fate and behaviour in water and sediment

The product is constituted by natural substances and consequently is completely degradable.

8.3 Summary of fate and behaviour in air

The Hydrolysed proteins are biodegradable, so their persistence in the environment is very short, without existing any tendency to bioaccumulation.

The physico-chemical characteristics of the Hydrolysed proteins demonstrate the relatively low volatility and a low tendency to partition from water to air. Therefore, it is concluded that little residue of Hydrolysed proteins will reach air and no study of degradation in air was performed.

The applications of NUTREL are therefore safe with regards to the potential short-range or long range transport of Hydrolysed proteins

8.4 Summary of monitoring data concerning fate and behaviour of the active substance, metabolites, degradation and reaction products

No data submitted

8.5 Definition of the residues in the environment requiring further assessment

No residues definition in necessary

8.6 Summary of exposure calculations and product assessment

***Guidance adapted from SANCO/12592/2012 (Template Assessment Report)**:*
For each compartment (soil, groundwater, etc.) provide a summary of the exposure assessments done for each representative use, with reference to the appropriate Volume(s) 3 (PPP) in which the complete calculations are presented. Sub-headings may be introduced for each compartment. For soil, surface water and sediment, the PEC values should be presented together with the corresponding TER in section 9.9 below. For these compartments it would therefore not be necessary to present any PEC values here.
Soil: For each representative use, the method (tier) used to estimate the exposure and any risk mitigation measure taken into account should be stated. Whether or not PECplateau was triggered should be indicated.
Groundwater: For each representative use, the method (tier) used to estimate the exposure and any risk mitigation measure taken into account should be stated. Conclusions on the risk for exceedence of the 0.1 µg/l limit value should be clearly stated. The need for an assessment of the relevance of metabolites should be clearly indicated, with reference to section 2.11. Individual PECgw (for active substance and metabolites) needs to be presented for each FOCUS scenario only in case the estimated PECgw is > 0.001 µg/l for any of the scenarios.
Surface water and sediment: For each representative use, the method (tier) used to estimate the exposure and any risk mitigation measure taken into account should be stated.
Air: For the case exposure via air has been estimated, state method used and the estimated values.
Other routes of exposure: State whether or not it has been shown that exposure via other routes (e.g., by deposition of dust; indirect exposure of surface water from Sewage Treatment Plant; from amenity use) can be excluded. If this has not been shown, state the method used to estimate the exposure and any risk mitigation measure taken into account. Since the estimated levels of exposure are expected to be presented in the risk assessment (i.e., under 9.9 below) there would be no need to repeat the values here.

Soil: not applicable
Groundwater: not applicable
Surface water and sediment: not applicable
Air: not applicable
Other routes of exposure: not applicable

9 EFFECTS ON NON-TARGET SPECIES

9.1 Summary of effects on birds and other terrestrial vertebrates

The product is constituted by natural substances and consequently is completely degradable. Reasonably there are not negative effects on the environment.

NUTREL has not been tested for potential toxicity to birds. Birds are typically exposed to dry residues on their food items following the dilution and spraying of the formulated product. During these processes, much of the formulation constituents are likely to be lost by biodegradation. Since oral exposure is the main route of exposure, toxicity data for the active substances are therefore used in preference to data from tests with the formulated material.

9.2 Summary of effects on aquatic organisms

The active substances derived from the hydrolysis of animal tissues do not have any significant toxicity potential.
Two or four applications are recommended so no continued and NUTREL is not intended for direct application in water bodies.

9.3 Summary of effects on arthropods

No studies submitted

9.4 Summary of effects on non-target soil meso- and macrofauna

No studies submitted

9.5 Summary of effects on soil nitrogen transformation

No study submitted

9.6 Summary of effects on terrestrial non-target higher plants

The product has no effects on seedling emergence and vegetative vigour and it is not expected to have any significant herbicidal activity.

9.7 Summary of effects on other terrestrial organisms (flora and fauna)

9.8 Summary of effects on biological methods for sewage treatment

9.9 Summary of product exposure and risk assessment

Guidance adapted from SANCO/12592/2012 (Template Assessment Report)*:*
For each group of organisms (terrestrial vertebrates, aquatic organisms etc) provide a summary of the risk assessment done for each representative use, with reference to the appropriate MIII

Annex Point (PPP) in which the complete calculations are presented. Sub-headings may be introduced for each group of organisms.
Conclusions drawn regarding the anticipated risk should be clearly stated for each representative use. State clearly the method (guidance and tier) used for risk assessment, method and assumptions used for refinements, and any risk mitigation measures taken into account.
For each use representations of risk (TER values, HQ etc.) together with the corresponding PEC values or other expressions of exposure should be presented for:

- *one standard calculation without refinement or risk mitigation (eg Step 3 for aquatic organisms);*
- *one calculation for the highest Tier necessary to draw conclusions for the most sensitive organism within each group of organisms.*

Product exposure and risk assessment to birds and other terrestrial vertebrates

Not applicable

Product exposure and risk assessment to aquatic organisms

Not applicable

Product exposure and risk assessment to arthropods

Not applicable

Product exposure and risk assessment to non-target soil meso- and macro-fauna

Not applicable

Product exposure and risk assessment to terrestrial non-target higher plants

Not applicable

Product exposure and risk assessment to terrestrial non-target higher plants

Not applicable

10 CLASSIFICATION AND LABELLING

Proposed classification according to Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures:

Labelling: Signal word: None
Hazard statements**: EUH 401** – To avoid risks to human health and the environment, comply with the instructions for use.
Precautionary statements: **P102** keep away from children.

P220 – Store away from food, feed, beverage

P270 – Do no eat, drink or smoke when using this product.

P280 – Wear protective clothing and gloves.

Proposed classification according to Dangerous Substances Directive (Directive 67/548/EEC):

Labelling: Indication of danger:
R-phrases: None
S-phrases: None

11 RELEVANCE OF METABOLITES IN GROUNDWATER

Not applicable

11.1 Summary

11.2 Conclusion

12 CONSIDERATION OF ISOMERIC COMPOSITION IN THE RISK ASSESSMENT

Not applicable

12.1 Summary

12.2 Conclusion

FURTHER INFORMATION TO BE SUBMITTED

Appendix 1: Metabolites formed from Active Substance and their occurrence

Code Number	**Description**	• **Compound found in**	**Structure**
		•	
		•	

Appendix 2: Proposed Metabolic Pathway