Carbofax

Protein Carbonyl Assay Kit

Material Safety Data Sheet

YELEN ANALYTICS

Section 1
Identification of the substance/mixture and of the company/undertaking

1. Product identifier: **Protein Carbonyl Assay Kit**
   Carbofax 100 / Carbofax 500

2. Relevant identified uses of the substance or mixture and uses advised against:
   Relevant uses: Research and development use. For professional user only.

3. Details of the supplier of the safety data sheet:
   YELEN ANALYTICS
   Faculté des Sciences - Aix-Marseille Université - ICR, CNRS UMR 7273, SMBSO, Service 522
   Avenue Escadrille Normandie Niemen - 13013 Marseille - FRANCE
   contact@yelen-analytics.com - http://yelen-analytics.com

4. Emergency telephone number: +33 (0)622694961 (9:00-19:00 UTC+1h)

Section 2
Hazards identification

1. **Classification of the substance or mixture: Classification according to Regulation (EC) No 1272/2008**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
H228 - Flam Sol. 2
H302 - Acute Tox. 4
H312 - Acute Tox. 4
H332 - Acute Tox. 4

Hydrochloric Acid
Corrosive to metals (Category 1), H290
Skin corrosion (Category 1B), H314
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

2. **Label elements: Labelling according Regulation (EC) No 1272/2008**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

Signal Word: Danger

Hazard statement(s)
H228 Flammable solid.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H332 Harmful if inhaled.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P370 + P378 In case of fire: Use CO2, foam or extinguishing powder for extinction.

Hydrochloric Acid

Signal word:  Danger

Hazard statement(s)
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

3. Other hazards:

NBD-H / 4-Hydrazino-7-nitrobenzofurazane and Hydrochloric Acid
None

Section 3
Composition/Information on ingredients

1. Substance:

Hazardous ingredients according to Regulation (EC) No 1272/2008

Product Name	CAS Number / EC Number	Hazards	Concentration
NBD-H / 4-Hydrazino-7-nitrobenzofurazane	90421-78-6	H228, H302, H312, H332 Acute Tox. 4, Flam Sol. 2	< 1 %
Hydrochloric Acid	7647-01-0 / 231-595-7	Met. Corr. 1; Skin Corr. 1B; STOT SE 3; H290, H314, H335 Concentration limits: >= 25 %: Skin Corr. 1B, H314; 10 - < 25 %: Skin Irrit. 2, H315; 10 - < 25 %: Eye Irrit. 2, H319; >= 10 %: STOT SE 3, H335; >= 0.1 %: Met. Corr. 1, H290;	< 5 %

Section 4
First aid measures

1. **Description of first aid measures:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

By inhalation:
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Consult a doctor.

By skin contact:
Wash immediately with plenty of soap and water. Remove all contaminated clothes and footwear immediately unless stuck to skin. Consult a doctor.

By eye contact:
Rinse opened eye for several minutes under running water. Transfer to hospital for specialist examination.

By ingestion/aspiration:
P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Wash out mouth with water.

Hydrochloric Acid

By inhalation:
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

By skin contact:
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

By eye contact:
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

By ingestion/aspiration:
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

2. **Most important symptoms and effects, both acute and delayed:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

There may be irritation and redness.

Hydrochloric Acid

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

3. **Indication of any immediate medical attention and special treatment needed:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

No additional measures required

Hydrochloric Acid

No data available

Section 5
Firefighting measures

1. **Extinguishing media:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

Suitable extinguishing media : P370 + P378: In case of fire: Use CO2, foam or extinguishing powder for extinction.

Hydrochloric Acid

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide

2. **Special hazards arising from the substance or mixture:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

In combustion toxic fumes may form.

Hydrochloric Acid
Hydrogen chloride gas

3. Advice for firefighters:

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
Wear self-contained breathing apparatus.
Wear protective clothing to prevent contact with skin and eyes.

Hydrochloric Acid
Wear self-contained breathing apparatus for firefighting if necessary.

Section 6
Accidental release measures

1. Personal precautions, protective equipment and emergency procedures:

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
Eliminate all sources of ignition.
Evacuate the area immediately.
Do not attempt to take action without suitable protective clothing - see section 8 of SDS

Hydrochloric Acid
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
Evacuate personnel to safe areas.
For personal protection see section 8.

2. Environmental precautions:

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
Do not discharge into drains or rivers.
Contain the spillage using bunding.

Hydrochloric Acid
Do not let product enter drains.

3. Methods and material for containment and cleaning up:

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
Mix with sand or vermiculite.
Do not use equipment in clean-up procedure which may produce sparks.
Transfer to a closable, labelled salvage container for disposal by an appropriate method.

Hydrochloric Acid
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

4. **Reference to other sections**:

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
No additional measures required

Hydrochloric Acid
For disposal, see section 13.

Section 7
Handling and storage

1. **Precaution for safe handling:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

Safe Handling:

Ensure there is sufficient ventilation of the area.
P240: Ground/bond container and receiving equipment.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.

Protection against explosions and fires:

P241: Use explosion-proof electrical/ventilating/lighting equipment.
P363: Wash contaminated clothing before reuse.

Hydrochloric Acid

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

2. **Conditions for safe storage, including any incompatibilities:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

Managing Storage Risks

Store in cool, well ventilated area.
Keep away from sources of ignition.
Keep container tightly closed.

Storage Controls: No special requirements
Maintaining Integrity:
P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Hydrochloric Acid

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, corrosive hazardous materials

3. **Specific end use(s):**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

The end use(s) have not been fully determined. The substance is supplied for Research and Development purposes by professionals only.

Hydrochloric Acid

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

Section 8
Exposure controls/personal protection

1. **Control parameters:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane and Hydrochloric Acid

No data available

2. **Exposure controls:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

General protective and hygiene measures

P280: Wear protective gloves/protective clothing/eye protection/face protection. Wash hands during breaks and at the end of handling the material. Immediately remove any contaminated clothing.
P271: Use only outdoors or in a well-ventilated area. Ensure lighting and electrical equipment are not a source of ignition.

Eye / Face protection

Safety Glasses with side-shields.

Body protection
Protective gloves.

Respiratory protection
P261: Avoid breathing dust/fume/gas/mist/vapours/spray. Use breathing protection with high concentrations

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practice. Wash and dry hands. Protective clothing.

Hydrochloric Acid

General protective and hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Eye / Face protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166(EU).

Body protection
Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use (US) or type ABEK (EN14387) respirator cartridges as a backup to engineer protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Section 9
Physical and chemical properties

1. **Information on basic physical and chemical properties**

Property	NBD-H / 4-Hydrazino-7-nitrobenzofurazane	Hydrochloric Acid
Appearance:	No data available	No data available
pH:	No data available	No data available
Water Solubility:	No data available	No data available
Other Solubility:	No data available	No data available
Boiling Point/range (°C):	No data available	No data available
Melting/freezing Point (°C):	No data available	No data available
Flash Point (°C):	No data available	No data available
Evaporation rate	No data available	No data available
Flammability (solid, gas)	No data available	No data available
Flammability Limits in Air	No data available	No data available
upper flammability limit	No data available	No data available
lower flammability limit	No data available	No data available
Vapor pressure	No data available	No data available
Vapor density	No data available	No data available
Relative density	No data available	No data available
Water solubility	Warm water	No data available
Solubility in other solvents	No data available	No data available
Partition coefficient: n-octanol/water	No data available	No data available
Autoignition Temperature (°C):	No data available	No data available
Decomposition temperature	No data available	No data available
Viscosity, kinematic	No data available	No data available
Explosive properties	No data available	No data available
Density:	No data available	No data available

2. **Other information**

	No data available	No data available

Section 10
Stability and reactivity

Property	NBD-H / 4-Hydrazino-7-nitrobenzofurazane	Hydrochloric Acid
Reactivity	no unusual reactivity	No data available
Chemical stability:	Stable under normal conditions	Stable under recommended storage conditions.
Possibility of hazardous reactions:	no hazardous reactions known	No data available
Conditions to avoid:	Sources of Ignition. Extremes of temperature and direct sunlight. Heat, flames and sparks.	No data available
Incompatibles Materials:	Oxidising agents.	No data available
Hazardous decomposition products:	In combustion emits toxic fumes. In combustion emits toxic fumes of carbon dioxide / carbon monoxide. In combustion emits toxic fumes of nitrogen oxides.	Hazardous decomposition products formed under fire conditions. Hydrogen chloride gas In the event of fire: see section 5

Section 11
Toxicological information

1. Information on toxicological effects

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

Acute toxicity:
Data not available.

Chronic Tocicity: No information found

Skin corrosion/irritation:
Irritant for skin and mucous membranes

Serious eye damage/eye irritation:
Irritant effect

Respiratory or skin sensitization:
No sensitizing effect known

Germ cell mutagenicity:
Data not available.

Carcinogenicity:
Data not available.

Reproductive toxicity:
Data not available.

Specific target organ toxicity - single exposure:
Data not available.

Specific target organ toxicity - repeated exposure:
Data not available.

Aspiration hazard:
Data not available.

Additional information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH

Hydrochloric Acid

Acute toxicity:
Inhalation: Inhalation may provoke the following symptoms: Respiratory irritation Cough Difficulty in breathing Pneumonia

Chronic Tocicity:
Data not available

Skin corrosion/irritation:
Skin (Rabbit) - Result: Causes burns.

Serious eye damage/eye irritation:
Eyes (Rabbit) - Result: Corrosive to eyes

Respiratory or skin sensitization:
Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity:
Data not available.

Carcinogenicity:
This product is or contains a component that is not classifiable as to its classification.
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity:
Data not available.

Specific target organ toxicity - single exposure:
The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Specific target organ toxicity - repeated exposure:
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard:
No aspiration toxicity classification

Additional information:
RTECS: Not available
Inhalation of vapors may cause: burning sensation, Cough, wheezing, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema

Section 12
Ecological information

1. **Toxicity:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
No data available

Hydrochloric Acid
Toxicity to fish : LC50 - Lepomis macrochirus (Bluegill) - 24.6 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates : EC50 - Daphnia magna (Water flea) - 4.91 mg/l - 48 h

2. **Persistence and degradability:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
No data available

Hydrochloric Acid
No data available

3. **Bioaccumulative potential**:

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
No data available

Hydrochloric Acid
No data available

4. **Mobility in soil:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
No data available

Hydrochloric Acid
No data available

5. **PBT and vPvB assessment:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane
No data available

Hydrochloric Acid
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

6. **Other adverse effects:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

Water hazard class 2 (self assessment); hazardous for water.

Hydrochloric Acid

May be harmful to aquatic organisms due to the shift of the pH. Do not empty into drains.

Section 13
Disposal considerations

1. **Waste treatment methods**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

Disposal of packaging

Disposal must be made according to official regulations.

Hydrochloric Acid

Product

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

Section 14
Transport information

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

ADR/RID - DOT (US)

IMDG

IATA

Hydrochloric Acid

ADR/RID - DOT (US)

IMDG

IATA

Section 15
Regulation information

1. **Safety, health and environmental regulations/legislation specific for the substance or mixture:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

Product is not subject to any additional regulations or provisions

Hydrochloric Acid

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

2. **Chemical safety assessment:**

NBD-H / 4-Hydrazino-7-nitrobenzofurazane

No additional measures required

Hydrochloric Acid

For this product a chemical safety assessment was not carried out

Section 16
Other information

ADR: Accord Europeen sur le transport des merchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by road)
RID :Reglement International concernant le transport des merchandises dangereuses par chemin de fer (Regulations concerning the International transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the International Air Transport Association
ICAO:International Civil Aviation Organization
ICAO-TI: Technical Instructions by the ICAO
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CAS: Chemical Abstracts Service

Legislation related to safety data sheets:
This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (Regulation (EC) No 2015/830)

Texts of the legislative phrases mentioned in section 2 and 3:
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Advice related to training:
Minimal training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Disclaimer :
The product listed is for research and development purposes only and not for human or animal use. As such, in most cases, the toxicological, ecological and physicochemical properties have not been fully determined and the product should be treated with respect and always handled under suitable conditions by appropriately qualified personnel. The responsible party shall use this datasheet only in conjunction with other sources of information gathered by them, and should make an independent judgement of suitability, to ensure proper use and protect the health and safety of employees. This information is furnished without warranty and any use of the product not in conformance with this material safety data sheet, or in combination with any other product or process, is the responsibility of the user.

Principal bibliographical sources: **Stocker *et al.*, *Analytical Biochemistry* Vol. 482, 1 August 2015, Pages 55-56.**