

Material Safety Data Sheet

Product name: DUTCH TRIG®

Manufacturer Information

BTL Bomendienst B.V.

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I. Identification

Common name: *Verticillium* isolate WCS850, suspension of spores (Conidia) in water
Chemical name: Not applicable
Molecular formula: Not applicable
CAS number: Not applicable
Concentration: 1 x 10⁷ conidia per ml

Other Ingredients: H₂O only, distilled, inert, non-reactive, and free of other bacterial or fungal infections

II. Physical data

Boiling point: 100° Celsius
Melting point: 0° Celsius
Density: 1 gr/ml
Solubility in water: insoluble, spores remain in suspension in water
Appearance: Liquid, water
Color: Clear, without color
Odor: None

III. Ingredients

Active Ingredient:	Verticillium isolate WCS850*	1,0%
Inert Ingredients:	Demi water	99,0%
Total:		100,0%

* Product contains at least 6.400.000 (conidia) per ml of formulated product.

IV. Fire and explosion hazard

Flash point: Not flammable
Method: Not applicable
Extinguishing Media: Use extinguishing media appropriate for the surrounding fire

Special fire fighting procedures: None
Unusual fire and explosion hazards: None

V. Reactivity

Stability: Material is non reactive
Hazardous
Polymerization: Does not occur
Incompatibility: None known
Hazardous decomposition products: None known
Conditions to avoid: Avoid temperatures above 4 degrees Celcius and below 0 degrees Celcius while in storage before usage. Beyond these temperatures the shelf live will shorten.

VI. Health Hazard Data

Primary route of entry: Oral and eye
Exposure limit: Not established
Corrosive: Not corrosive
Skin and eye irritation: Not irritating
Effects of overexposure: None known
Toxicity: Not toxic

Acute intra-peritoneal toxicity:

A single intra-peritoneal dose of Dutch Trig® at $1,0 \times 10^7$ CFU per animal was administered to three male and three female Sprague-Dawley rats. Two additional animals per sex were used as an untreated control group. All animals survived to Scheduled sacrifice.
No unusual clinical signs were observed in any animals throughout the course of the study. No notable differences in body weight or body weigh chances were observed in the treated animals by Day 15, when compared to controls. No abnormal findings were noted in any animals at necropsy.

VII. First Aid

If on skin or clothing:

- Take off contaminated clothing
- Rinse skin immediately with plenty of water for 15-20 minutes
- Call physician if irritation persists

If in eyes:

- Hold eye open and rinse slowly and gently with water for 15-20 minutes
- Remove contact lenses after first 5 minutes, than continue rinsing eye
- Call doctor if irritation persists

VIII. Spill or leak Procedures

Steps to be taken if material is released or spilled:

- Contain spill area.
- Remove all unauthorized people
- Avoid contamination of streams and sewers.
- Absorb onto clay or other absorbent material

Waste disposal method: dispose of in accordance with all federal, state and local standards

IX. Special Protection Information

Protective Gloves: Wear gloves during Dutch Trig® application

Glasses: Wear protective glasses during Dutch Trig® application

Other protective clothes: When working on trees always wear a hard hat.

X. Special Precautions

Storage information

Temperature:

- Store vials with closed and sealed cap until shortly before use
- Store between 0-4 degrees Celcius
- Store the vials lying down
- Prevent the vials from freezing

Shelf life:

- 6 weeks after production
- See printed expiry date on sticker on each of the vials

Special sensitivity:

- If the vials are stored different from what is described above, the shelf life will shorten.
- If the vials remain without cooling for more than 24 hours well before the product is being used, the product should be used immediately or no longer be used.
- When a vial has been opened, but is not used all at once, the open vial should be stored in the refrigerator.
- Opened vials, should always be kept closed and cool, and finished within 24 hours after being opened.
- Vials that have gone bad can be recognized by a whitish troubled content (Fungi Hyphe).

Application:

- Dutch Trig® should be applied two weeks before the first possible Dutch elm disease infection
- Dutch Trig® should be applied in spring, after bud break (start treatment at 25% leaf expansion), and preferably before leaves have fully expanded.
- Shake the vial gently before use
- Transport vials to the site of injection cooled if possible and finish once opened vials within 24 hours. In between treatments store the vials and injection tool at 0-4 degrees Celsius. If not possible, use the vials within 8 hours after having taken them from the cooler/refrigerator
- Dutch Trig® must only be administered by certified arborist, who received Dutch Trig® training
- Dutch Trig® should not be used in heavy rain, to prevent runoff or dispersion of the vaccine over the outside of the tree trunk with the rainwater
- Avoid treating trees in the proximity of crops susceptible to Verticillium without the consent of the grower.

Dutch Trig®

inoculation tool:

- Dutch Trig® can only be applied with the Dutch Trig® tree inoculation tool
- Only a yearly serviced inoculation tool should be used

Handling/Storage

precautions:

- Do not store near any material intended for use or consumption by humans or animals.
- Wash face, hands, and arms thoroughly with soap and water after handling

XI. Shipping Information

Proper Shipping name: Dutch Trig®

DOT labels required: None

Freight classification: Non-hazardous goods

Sara Tottle II Hazard Classification:

Immediate (acute) health: No

Delayed (chronic) health: No

Fire: No

Sudden release of

pressure: No

Reactivity: No

National Fire protection Association Rating:

Health: 0

Flammability: 0

Reactivity: 0

XII. General Product Information

Dutch Trig® is a biological preventative treatment, to prevent Dutch elm disease on American elms (*Ulmus americana*). Before injecting other elm species please consult the manufacturer (info@dutchtrig.com).

The protection against Dutch elm disease is only valid for one year. Trees must be treated yearly.

Dutch Trig® is only effective on healthy elms. Dutch Trig® is not a cure for already diseased trees. Dutch elm disease prevention is most successful when Dutch Trig® is used in conjunction with other practices such as timely removal and destruction of diseased trees and elm firewood, severing of root grafts between diseased and healthy trees and visual inspections of elms trees to check for signs of Dutch elm disease during the growing season.

