

# DANGEROUS POISON

KEEP OUT OF REACH OF CHILDREN  
READ LABEL BEFORE USE

## Tri-Form® 60 SOIL FUMIGANT

ACTIVE CONSTITUENTS:  
596 g/kg (865 g/L) CHLOROPICRIN  
390 g/kg (566 g/L) 1,3-DICHLOROPROPENE

For the control of a wide range of soil borne diseases, plant parasitic nematodes, symphylans and wireworms, and for the suppression of weeds

Supply of this product is restricted to licensed fumigators.

## NET CONTENTS: 95 kg

### TRICAL, Inc.

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Registered pursuant to the ACVM Act 1997; P8550  
Refer to [www.foodsafety.govt.nz](http://www.foodsafety.govt.nz) for Registration Conditions

#### HAZARDS

- Flammable liquid and vapour
- Product is highly toxic if inhaled and toxic if swallowed or in contact with skin.
- Causes severe skin burns and serious eye damage.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Suspected of causing genetic effects and cancer.
- Causes damage to organs.
- Very toxic to aquatic life, with long-lasting effects.
- Very toxic to terrestrial vertebrates.
- Toxic to terrestrial invertebrates.

#### SAFETY DIRECTIONS

- Supply of this product is restricted to licensed fumigators.
- Only persons who have successfully completed a product-specific training course approved by *the Authority* may handle this product.
- Use only outdoors or in a well-ventilated area.
- Do not inhale vapour. The fumes first cause smarting, then watering of the eyes. This should be taken as a warning sign to leave the area. Over-exposure could cause respiratory distress and/or vomiting. Pulmonary edema may develop later.
- Do not get in eyes, on skin, or on clothing.
- Do not eat, drink or smoke when using product.
- Wash hands thoroughly with soap and water after handling product and before rest or meal breaks.
- After each day's use, wash gloves, contaminated clothing and respirator.
- Do not re-use footwear until thoroughly aired.
- Keep container tightly closed and away from heat, sparks, open flames and hot surfaces.
- Avoid release to the environment, except as approved for use as a soil fumigant.

#### FIRST AID

- If poisoning occurs, get immediate medical assistance. For advice, contact a doctor or the National Poisons Centre, Phone: 0800 POISON (0800 764 766).
- If inhaled, remove person from contaminated area. Apply artificial respiration if not breathing. Get immediate medical attention.
- If skin contact occurs, remove contaminated clothing immediately; then rinse skin thoroughly with water.
- If in eyes, hold eyes open, flood with water for at least 15 minutes, and get medical attention.

#### PERSONAL PROTECTIVE EQUIPMENT

- When performing tasks with NO potential for contact with liquid fumigant, all handlers (including applicators) must wear a long-sleeved shirt and long pants (or coveralls), shoes and socks.
- When performing tasks with potential for contact with liquid fumigant, all handlers (including applicators) must wear a long-sleeved shirt and long pants (or coveralls), chemical-resistant gloves, a chemical-resistant apron, protective eyewear (Do NOT wear goggles), and socks plus chemical-resistant footwear.
- All handlers (including applicators) must also wear a half-face air-purifying respirator. If sensory irritation (tearing, burning of the eyes or nose) is experienced and handlers remain in the application block or buffer zone, handlers must wear a full-face-piece air-purifying respirator equipped with an organic vapour cartridge and a particulate pre-filter, or a gas mask with a canister approved for organic vapour.

It is an offence to use this product on animals.

It is an offence for users of this product to cause residues exceeding the relevant MRL in the New Zealand (Maximum Residue Limits of Agricultural Compounds) Food Standards.

#### DIRECTIONS FOR USE

For use only as a soil fumigant. To be used only by fumigator with Approved Handler Certificate and holder of Controlled Substance License (for Fumigants) unless person is under that authorized person's direct supervision. The fumigator must also have undertaken an approved product specific training course.

#### NOTIFICATION OF INTENDED FUMIGATION

Notifications are required not less than 24 hours before fumigation (and again upon completion of the fumigation) to:

- Person in charge of area to be fumigated,
- The nearest Communication Centre of the NZ Fire Service, and
- Every other person normally located within 100 m from the outer edge of the buffer zone.

#### SIGNAGE

- Signage is required around the perimeter of the buffer zone, at every intended point of entry.
- Signs must be posted from the start of fumigation until the end of the buffer zone period and are to be removed within 3 days of the end of the buffer zone period.
- Signs must include the following: **"DANGER – KEEP OUT – FUMIGATION IN PROGRESS – CHLOROPICRIN AND 1,3-DICHLOROPROPENE FUMIGANT IN USE – TOXIC TO HUMANS"**.
- Signs must state the day on which the fumigation commenced.
- Signs must identify the person in charge of the fumigation and provide this person's contact information.
- Signs must also include the product's name and the 24-hour emergency telephone number: **National Poisons Centre 0800 764 766**.

#### RESTRAINTS

- DO NOT apply within 400 m of any facility where the public might normally be present, such as schools, playgrounds, early childhood centres, prisons, hospitals and long-term care facilities.
- DO NOT use above maximum application rate of 650 kg per hectare.
- DO NOT apply more than 2 times per year with a minimum application interval of 120 days on same area.
- DO NOT use when soil temperature is above 27° C.
- DO NOT use when soil temperature is below 10° C unless sealing with plastic sheets/tarps.
- DO NOT use when soil temperature is below 5° C when sealing with plastic sheets/tarps.
- DO NOT treat soil when very wet or very dry at depth of fumigation.
- DO NOT dilute with water.
- DO NOT apply through any type of irrigation system.

#### GENERAL INSTRUCTIONS

- Tri-Form 60 is a multi-purpose liquid fumigant for pre-plant treatment of soil that can be used as part of a management program involving rotation, resistant varieties, and other cultural practices designed to alleviate soil borne diseases, plant parasitic nematodes, wireworms and symphylans. Tri-Form 60 may suppress some types of weeds. Weed control can be enhanced by tarping with highly retentive films, such as TIF or VIF. Clover, filaree, malva, morning glory, vetch, nightshade and other hard-seeded species are not eradicated by fumigation, although weed populations following fumigation are usually reduced.
- Before fumigation, soil sampling for the type and number of pests present is recommended. Where pre-treatment soil samples indicate the presence of high population levels of soil-borne pathogens, a successful fumigation cannot be expected to eradicate entire populations. Therefore, post-treatment sampling is recommended to determine the need for additional pest management practices.
- For best results, it may be necessary to treat soils carrying annual crops every year.
- Fumigation may temporarily raise the level of nitrogen and soluble ammonium salts in the soil. This is most likely to occur when heavy rates of fertilizer are applied to soils before fumigation, especially if the soils are cold, wet, acid or high in organic matter. To avoid ammonia injury or nitrate starvation (or both) to crops grown on high organic soils, DO NOT use fertilizers containing ammonium salts and use only fertilizers containing nitrates, until after the crop is well established. In mineral soils, do not apply more than two-thirds of the nitrogen requirements from fertilizers containing ammonium salts until the crop is well established.
- Certain nursery crops, such as citrus seedlings, and vegetable crops, such as cauliflower, have shown evidence of phosphorus deficiency following fumigation. To avoid this possible effect, additional phosphate fertilizer (foliar applied) is recommended where experience indicates a deficiency may occur.
- Tri-Form 60 will control pests that are present in the soil treatment zone at the time of fumigation. It will not control pests that are introduced into soil after fumigation. Pests can be reintroduced into fumigated soil by irrigation water, transplants, seed pieces, or equipment. Avoid contamination from moving infested soil onto treated beds through cultivation, movement of soil from below the treated zone, dumping contaminated soil in treated fields and soil contamination from equipment or crop remains. Clean equipment carefully and ensure shoes and/or clothing are cleaned of soil before entering treated fields.

#### APPLICATION RATES

Table 1: Application Rates

CROP	PEST	SOIL TYPE	BROADACRE RATES <sup>1</sup> kg/ha (L/ha)	CRITICAL COMMENTS
Field crops, including Strawberries and other Fruits and Vegetables, Nut crops, Nursery crops	<b>Soil borne diseases (including Fusarium and Verticillium wilts, Rhizoctonia, Pythium), Plant parasitic Nematodes, Symphylans (garden centipedes); Wireworms, and for the suppression of weeds.</b>	Light to medium soils (e.g., coarse-textured sands, sandy loams and loams, coarse textured clay loams).	270 – 500 kg/ha (200 – 370 L/ha); 27 – 50 g/m <sup>2</sup> of row	<b>Pre-plant treatment only:</b> At time of application soil should be in good seed bed condition, free of clods and undecomposed plant material, and with adequate soil moisture.
		Use the higher rate for medium to heavy soils (such as fine-textured clay loams or soils with a high level of organic matter, such as peat).	400 – 650 kg/ha (300 – 480 L/ha); 40 – 65 g/m <sup>2</sup> of row	For Application Timing, Soil Conditions and Soil Moisture, Soil Preparation and Placement Of Fumigant, Application Methods, Equipment and Sealing the Soil After Application: See <b>APPLICATION</b> .
				See <i>Soil Fumigation Interval</i> section for <i>Exposure Period</i> and <i>Aeration Period</i> before <i>Planting</i> .

<sup>1</sup> Rates given may be concentrated in the row, but in no case should the amount applied per hectare exceed the maximum broadcast application rates (kg/ha or L/ha) given in the above table.

#### BUFFER ZONE

The Buffer Zone is the area extending outward from the perimeter of each Application Block to the relevant distance. The required buffer zone distance is determined by the size of the Application Block and the Application Rate of Tri-Form 60, see Table 2. Application Block means the area within the boundary defined by the outer extremity of all soil to which the substance has been applied in any 24-hour period and includes any untreated areas within the boundary of the Application Block. The Application Rate means the kilograms of Tri-Form 60 applied per hectare of soil treated with the substance, see Table 1, below. The buffer zone distance may be reduced in accordance with the credits listed in Table 3 (additive up to a maximum credit of 80%); however, under no circumstances is the buffer zone ever less than 8 meters. The Buffer Zone Period begins when Tri-Form 60 is first applied to the soil and lasts until 48 hours after the product has stopped being applied to the soil within an Application Block.

Table 2: Minimum distance (in metres) between the perimeter of the Application Block and any point of the perimeter of the Buffer Zone for all applications.

	Application Block Size (ha)																	
	1	2	3	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
<150	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
150	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
160	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
170	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
180	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
190	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
200	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
210	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
220	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
230	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
240	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
250	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
260	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
270	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
280	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
290	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
300	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
310	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
320	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
330	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
340	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
350	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
360	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
370	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
380	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
390	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
400	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
410	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
420	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
430	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
440	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
450	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
460	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
470	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
480	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
490	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
500	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
510	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
520	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
530	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
540	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
550	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
560	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
570	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
580	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
590	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
600	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
610	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
620	15	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
630	15	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
640	16	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
650	16	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17

Table 3: Buffer Zone Credits  
EMISSION MITIGATION CRITERIA

	BUFFER ZONE DISTANCE REDUCTIONS	
<b>Use of highly retentive plastic sheeting</b>	<b>Chloropicrin MTC +/-cm h-1</b>	
Metalized film	0.018 - 0.400	20%
Virtually Impermeable Film (VIF)	0.00035 - 0.018	40%
Totally Impermeable Film (TIF)	< 0.00035	60%

#### Soil Organic Matter Content

1 ≤ Soil %OM < 2	10%
2 ≤ Soil %OM < 3	20%
3 ≤ Soil %OM	30%

#### Soil Clay Content

27 ≤ Soil %CC	10%
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#### Reactive boundary layer (halogenated compound degradation accelerant)

Use of potassium thiosulfate	15%
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#### APPLICATION

##### Application Timing

Tri-Form 60 can be applied at any time of the year when soil conditions permit. Conditions that allow rapid diffusion of the fumigant as a gas through the soil normally give best results. Tri-Form 60 does not provide residual control of soil pests and must be applied before planting each crop; however, DO NOT apply more than 2 times per year and no sooner than a minimum application interval of 120 days on same area. The following soil temperature and moisture conditions should exist at time of application. Failure to meet these conditions may result in unsatisfactory product performance.

##### Soil Temperature

- Optimal temperatures for application are between 10° C and 20° C at the intended depth of fumigation.
- A soil temperature minimum of 5° C is permissible, provided the soil is immediately sealed with plastic sheeting.
- Otherwise, DO NOT use when soil temperature is below 10° C or above 27° C.

##### Soil Moisture

It is critical to manage soil moisture properly before fumigation. Soil moisture content is required to be 50-