

**POISON**  
**KEEP OUT OF REACH OF CHILDREN**  
**READ SAFETY DIRECTIONS BEFORE OPENING OR USING**

# **Quantum**<sup>®</sup>

**SEED TREATMENT**

**ACTIVE CONSTITUENT: 167 g/L FLUQUINCONAZOLE**

**GROUP 3 FUNGICIDE**

**For the control of a range of foliar and head diseases in wheat and barley, plus the suppression of take-all and septoria tritici blotch in wheat and blackleg in canola.**

**IMPORTANT: READ ATTACHED LEAFLET BEFORE USE**

**Contents: 10 L**

Chemtura Australia Pty Ltd  
Level 7, 435 King William Street Adelaide SA 5000  
Tel: (08) 8112 0900 Fax: (08) 8112 0999

 **Chemtura**  
AGROSOLUTIONS™

## STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Do not store near foodstuffs or animal feed. Triple or preferably pressure rinse containers before disposal. Dispose of rinsings in disposal pit, or use for diluting product to required volume. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and bury empty container in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots.

Empty containers and product should not be burnt.

### Application equipment

Rinse all application equipment with clean water immediately after use and dispose of rinsings in a dedicated disposal pit, specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots.

### Treated seed and containers of treated seed

Store treated seed in clearly marked bags or silos, away from other grain, animal feed or foodstuffs, in a cool, dry storage area. Do not use treated seed for human or animal consumption. If disposal of treated seed is necessary e.g. when cleaning up spillages, bury seed below 500 mm in a suitably located disposal pit, as described above. Do not use bags that have contained treated seed for any other purpose.

## SAFETY DIRECTIONS

Harmful if swallowed. May irritate the eyes. Avoid contact with the eyes. When preparing the mixture and using the prepared mixture, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), elbow-length PVC gloves and goggles. Wash hands after use. After each day's use, wash gloves, goggles and contaminated clothing.

### FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. *Phone Australia 131 126.*

### MATERIAL SAFETY DATA SHEET

Additional information is listed in the Material Safety Data Sheet.

### CONDITIONS OF SALE

Chemtura Australia Pty Ltd will not accept any responsibility whatsoever and howsoever arising and whether for consequential loss or otherwise in connection with the supply or use of these goods other than responsibility for the merchantable quality of the goods and such responsibilities mandatorily imposed by Statutes applicable to the sale or supply of these goods. To the extent allowed by such Statutes the liability of Chemtura Australia Pty Ltd is limited to the replacement of the goods or (at the option of Chemtura Australia Pty Ltd) the refund of the price paid and is conditional upon a claim being made in writing and where possible sufficient part of the goods to enable proper examination being returned to Chemtura Australia Pty Ltd within thirty days of delivery.

® Quantum is a registered trademark of a subsidiary of Chemtura Corporation

<b>UN No.</b> <b>2902</b>	<b>PESTICIDE, LIQUID, TOXIC, N.O.S.</b> <b>(CONTAINS FLUQUINCONAZOLE)</b>
In a Transport Emergency Dial <b>000</b> Police or Fire Brigade	SPECIALIST ADVICE IN EMERGENCY ONLY <b>1800 033 111</b> ALL HOURS – AUSTRALIA WIDE
<b>P.G. III</b>	<b>HAZCHEM 2X</b>



APVMA Approval No: 57975/10-20L/0407

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**DIRECTIONS FOR USE**

**Restraints**

**DO NOT apply to damaged, shot or pinched seed.**

**DO NOT apply treated seed from aircraft.**

CROP	DISEASE	APPLICATION RATE	CRITICAL COMMENTS
Wheat	Take-all (suppression) ( <i>Gaeumannomyces graminis</i> )	<u>Undiluted</u> 4.5 L/ tonne of seed <u>Diluted</u> 4.5 L plus up to 1.5 L of water/ tonne of seed	Ensure even coverage of seed. Apply with an applicator designed for liquid seed treatments. Calibrate application equipment for the flow rate of the grain. Quantum may be diluted with water prior to application to improve coverage. If applying dilute, or in mixtures the maximum recommended application volume is 6 L per tonne of seed.
	Common bunt ( <i>Tilletia</i> spp.) Seed- and soil-borne Flag smut ( <i>Urocystis agropyri</i> ) Loose smut ( <i>Ustilago tritici</i> ) Stripe rust * ( <i>Puccinia striiformis</i> f. sp. <i>tritici</i> ) Leaf rust ** ( <i>Puccinia triticina</i> ) Septoria tritici blotch (suppression) ( <i>Mycosphaerella graminicola</i> )	<u>Undiluted</u> 3.0 or 4.5 L/ tonne of seed <u>Diluted</u> 3.0 L plus up to 3.0 L of water/ tonne of seed OR 4.5 L plus up to 1.5 L of water/ tonne of seed	*Stripe rust will be controlled for up to 6 weeks after sowing, with good suppression thereafter at the 4.5L/tonne seed rate. Use of Quantum at the 3.0L/tonne seed rate will provide up to 5 weeks control after sowing and good suppression thereafter.  **Leaf rust will be controlled for up to 4 weeks after sowing, with good suppression thereafter at the 4.5L/tonne seed rate. Use of Quantum at the 3.0L/tonne seed rate will provide up to 3 weeks control after sowing and good suppression thereafter.
Barley	Barley leaf scald <sup>o</sup> ( <i>Rhynchosporium secalis</i> ) Powdery mildew# ( <i>Blumeria graminis</i> f.sp. <i>hordei</i> ) Barley loose smut ( <i>Ustilago nuda</i> var. <i>hordei</i> ) Covered smut ( <i>Ustilago segetum</i> var. <i>hordei</i> )	<u>Undiluted</u> 3.0 L Quantum + 1.0 L Proguard/ tonne of seed <u>Diluted</u> 3.0 L Quantum + 1.0 L Proguard plus up to 2.0 L water/tonne seed	Ensure even coverage of seed. Apply with an applicator designed for liquid seed treatments. Calibrate application equipment for the flow rate of the grain. Quantum may be diluted with water prior to application to improve coverage. If applying dilute, or in mixtures the maximum recommended application volume is 6L per tonne of seed.  <sup>o</sup> Barley leaf scald is controlled for up to 6 weeks after sowing, with good suppression thereafter.  <sup>#</sup> Powdery mildew is controlled for up to 5 weeks after sowing, with good suppression thereafter.
Canola	Blackleg (suppression) ( <i>Leptosphaeria maculans</i> )	20 L/tonne of seed	Ensure even coverage of seed. Apply undiluted with an applicator designed for liquid seed treatments. Calibrate application equipment for the flow rate of the grain.

**NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.**

**WITHHOLDING PERIODS**

**Wheat and Barley**

**Harvest:** NOT REQUIRED WHEN USED AS DIRECTED  
**DO NOT CUT FOR STOCKFOOD WITHIN 12 WEEKS OF SOWING**

**Grazing:** **DO NOT GRAZE WITHIN 6 WEEKS OF SOWING**

**LIVESTOCK PRODUCING MILK FOR HUMAN CONSUMPTION: DO NOT GRAZE WITHIN 12 WEEKS OF SOWING.**

**Canola**

**Harvest:** NOT REQUIRED WHEN USED AS DIRECTED

**Grazing:** **DO NOT GRAZE PLANTS GROWN FROM TREATED SEED, OR CUT FOR STOCK FOOD WITHIN 8 WEEKS OF SOWING.**

**LIVESTOCK DESTINED FOR EXPORT MARKETS**

The grazing withholding periods apply to stock slaughtered for the domestic market. Some export markets apply different standards. To meet these standards, ensure that in addition to complying with the grazing withholding period, the Export Slaughter Interval (ESI) is observed before stock are sold or slaughtered.

**EXPORT SLAUGHTER INTERVAL (ESI) – 7 weeks**

Livestock that have been grazing on crops grown from treated seed should be placed on clean feed for 7 weeks prior to export slaughter.

**PROTECTION STATEMENT**

**DO NOT FEED TREATED SEED TO LIVESTOCK, INCLUDING POULTRY.**

**GENERAL INSTRUCTIONS**

Quantum is a novel quinazolinone-based triazole fungicide for the protection of wheat against the root disease, take-all and protection of canola against blackleg.

When Quantum is applied as a seed treatment to wheat, the development of take-all is suppressed. Suppression of take-all with Quantum is characterised by reduced root lesions and a reduced number of whiteheads.

Quantum also provides season long control of common bunt, seed- and soil-borne flag smut and loose smut in wheat. In addition Quantum provides early season control of leaf rust, stripe rust and suppression of Septoria tritici blotch in wheat. Suppression of Septoria tritici blotch with Quantum results in a reduction in the visible symptoms of this disease.

When applied to barley Quantum provides early season control of powdery mildew and scald, with good suppression of both diseases for an extended period. In order to provide adequate control of loose smut and covered smut in barley, Quantum must be applied in tank mixture with a full label rate of Proguard T Seed Treatment as indicated in the 'Application Rate' section of the Directions for Use Table.

When Quantum is applied as a seed treatment to canola, the development of blackleg disease is suppressed. Suppression of blackleg with Quantum is characterised by reduced leaf infection, reduced plant lodging and increased plant survival.

Quantum is applied to wheat and canola seed prior to sowing. The low water solubility of the active ingredient, fluquinconazole, allows extended uptake for long lasting protection of the plant, thus reducing the yield decline commonly associated with the above-mentioned root, grain and foliar diseases.

Quantum contains a red pigment so that treated grain can be easily identified.

**FUNGICIDE RESISTANCE WARNING**

**GROUP 3 FUNGICIDE**

Quantum Seed Treatment is a member of the triazole group of fungicides. For fungicide resistance management Quantum is a Group 3 fungicide. Some naturally occurring individual fungi resistant to Quantum and other Group 3 fungicides may exist through normal genetic variability in any fungal population. The resistant individuals can eventually dominate the fungal population if these fungicides are used repeatedly. These resistant fungi will not be controlled by Quantum and other Group 3 fungicides, thus resulting in a reduction in efficacy and possible yield loss. Since the occurrence of resistant fungi is difficult to detect prior to use, Chemtura Australia Pty Ltd accepts no liability for any losses that may result from the failure of Quantum to control resistant fungi.

**APPLICATION**

Quantum is applied to seed prior to sowing. It may be applied alone or in mixture with certain other seed treatment products, depending on the crop being treated and the target diseases (see below). For treatment of wheat and barley seed, Quantum may also be diluted with water prior to application. Application must be conducted with a seed treatment machine suitable for flowable seed dressings, with an adjustable output. The equipment must be calibrated for the flow rate of the seed, to ensure even coverage and correct application rates. For best results, Quantum should be used to treat only undamaged, cleaned seeds of high viability.

**Wheat**

Quantum is a water based flowable product that can be applied neat or diluted with water. When applying the diluted product, prepare sufficient solution for the quantity of grain to be treated. Do not store diluted product. Do not dilute Quantum with water such that greater than 6L dilute product per tonne of seed is applied.

**Barley**

Quantum must be mixed with Proguard prior to application. This mixture may be applied neat or diluted with water. Do not dilute the mixture of Quantum and Proguard with more than 2.0 litres of water for each tonne of barley seed to be treated. Prepare sufficient solution only for the quantity of grain to be treated. Do not store diluted product.

**Canola**

Apply Quantum neat to canola seed. Do not add water.

**MIXING INSTRUCTIONS**

**Wheat and barley only**

If mixing other compatible products or water with Quantum, mix only sufficient product for immediate use. Add the required compatible product or water to Quantum and agitate thoroughly by shaking, rolling or stirring. Do not allow mixed product to stand for more than five hours without further agitation.

**Compatibility**

Quantum Seed Treatment may be applied with Guardian<sup>®</sup> Seed Treatment Insecticide.

**Wheat only**

Quantum is compatible with Vincit<sup>®</sup> C, Advance<sup>®</sup> (up to 1.25 L/tonne) and Raxil<sup>®</sup> C and Proguard<sup>®</sup> T seed treatments.

**Barley only**

Quantum is compatible with Proguard<sup>®</sup> T and Proguard<sup>®</sup> Plus seed treatments.

Where additional protection against grain storage pests is required, Chemtura Australia Pty Ltd recommends a mixture of Quantum with K-Obiol<sup>®</sup> or another registered grain protection insecticide. Refer to the product label for application information.

**CROP SAFETY**

**Canola**

Quantum may shorten the hypocotyl length of canola. To avoid possible negative effects, Chemtura Australia Pty Ltd recommends following good canola sowing practices. Avoid sowing Quantum treated canola deeper than 20 mm, or into soils prone to crusting. Ensure Quantum treated seed is sown in the season of treatment.

**PRECAUTIONS**

DO NOT use treated seed for human or animal consumption. DO NOT allow treated seed to contaminate grain or other seed intended for human or animal consumption.

**PROTECTION OF LIVESTOCK**

DO NOT feed treated seed to animals, including poultry.

**PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT**

Treated seed could be harmful to game and wildlife.

DO NOT feed treated seed to wild or domestic birds. Any spillage of treated seed, however minor, must be cleaned up immediately, preferably recovered and used.

DO NOT contaminate streams, rivers or waterways with either this product, washings of this product, treated seed, or any container which has held product (see Storage and Disposal for directions).

**STORAGE AND DISPOSAL**

Store in the closed, original container in a cool, well-ventilated area. DO NOT store for prolonged periods in direct sunlight. Do not store near foodstuffs or animal feed.

**5, 10, 20 and 200 L containers**

Triple or preferably pressure rinse containers before disposal. Dispose of rinsings in disposal pit, or use for diluting product to required volume. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and bury empty container in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

**100L containers**

Empty container by pumping through the dry-break connection system. Do not attempt to unscrew the valve or breach the locked filling point. Do not contaminate the container with water or other foreign material. Ensure that the coupler, pump, meter and hoses are disconnected, triple rinsed with clean water and drained after each use. When empty, or contents no longer required, return the container to the point of purchase. This container remains the property of Chemtura Australia Pty Ltd.

**1000L containers**

**Schütz container with camlock valve connection**

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. The container must be vented before discharging contents. To empty connect a camlock fitted hose to the bottom valve. Remove top cap when discharging for venting purposes. When the container is empty, close all caps and valves and return the container to the point of purchase.

**Application equipment**

Rinse all application equipment with clean water immediately after use and dispose of rinsings in a dedicated disposal pit, specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots.

**Treated seed and containers of treated seed**

Store treated seed in clearly marked bags or silos, away from other grain, animal feed or foodstuffs, in a cool, dry storage area. Do not use treated seed for human or animal consumption. If disposal of treated seed is necessary e.g. when cleaning up spillages, bury seed below 500 mm in a suitably located disposal pit, as described above. Do not use bags that have contained treated seed for any other purpose.

**SAFETY DIRECTIONS**

Harmful if swallowed. May irritate the eyes. Avoid contact with the eyes. When preparing the mixture and using the prepared mixture, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), elbow-length PVC gloves and goggles. Wash hands after use. After each day's use, wash gloves, goggles and contaminated clothing.

**FIRST AID**

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Quantum<sup>®</sup>, Advance<sup>®</sup>, Guardian<sup>®</sup> and Proguard<sup>®</sup> are registered trademarks of a subsidiary of Chemtura Corporation. Vincit, Raxil & K-Obiol are registered trademarks.