

# EQUATION® PRO

## FUNGICIDE

Registration number/Registrasie Nommer L6677 Act/Wet Nr. / No. 36 of / van 1947

**READ THE LABEL BEFORE USE  
KEEP OUT OF REACH OF CHILDREN AND ANIMALS**

FRAC GROUP	11 & 27	FUNGICIDE
Organic preventive and curative fungicide (water dispersible granule) for the control of downy mildew ( <i>Plasmopara viticola</i> ) in wine and table grapes.		Organiese beskermende en genesende swamdoder (water dispergeerbare korrel) vir die beheer van donsige skimmel ( <i>Plasmopara viticola</i> ) in tafel- en wyndruie.



**HAZARD STATEMENTS:**

Harmful if swallowed.  
Suspected of damaging fertility or the unborn child.  
Very toxic to aquatic life with long lasting effects.



**PRECAUTIONARY STATEMENTS:**

Obtain special instructions before use.  
Do not breathe dust/fume/ gas/mist/vapours/spray.  
Collect spillage.  
Dispose of contents/container in accordance with applicable regulations.



**WARNING**

**ACTIVE INGREDIENTS / AKTIEWE BESTANDDELE**

Cymoxanil (ethyl urea) .....	300 g/kg .....	Simoksaniil (ethyl urea)
Famoxadone (oxazolidinedione) .....	225 g/kg .....	Famoksadoon (okasolidiendioon)

**Nett Mass ..... 400 g ..... Netto Massa**

**REGISTRATION HOLDER / REGISTRASIEHOUER**

**Corteva Agriscience RSA (PTY) LTD**

REG NO. 1991/003030/07

Block A, 2nd Floor, Lakefield Office Park,

272 West Avenue, Centurion SOUTH AFRICA

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Batch Number .....		..... Lotnommer
Date of Manufacture .....		..... Vervaardigingsdatum
Expiry date .....		..... Vervaldatum

**UN NUMBER: 3077**

Poisons Helpline: +27(0)861-555-777  
Local Emergency No: +27(0)82-895-0621 (SA only)  
24 Hour Emergency Tel No: +32-3-575-5555  
Information Hotline Tel No: +27(0)12 683-5700

Equation Pro/2023-05-08

**WARNINGS:**

**HAZARD STATEMENTS:**

Harmful if swallowed.  
Suspected of damaging fertility or the unborn child.  
May cause damage to organs, blood, eyes, thymus through prolonged or repeated exposure.  
Very toxic to aquatic life with long lasting effects.

**WITHHOLDING PERIOD:** ALLOW THE FOLLOWING MINIMUM NUMBER OF DAYS BETWEEN LAST APPLICATION AND HARVEST:

Wine and table grapes: ..... 28 days

**Grapes and grape products e.g. wine, grape juice and raisins for export:**

The local MRL level of EQUATION® PRO may not be applicable in all countries where to RSA grapes and grape products are exported. Corteva Agriscience™ can therefore not be held liable if the import tolerance of other countries is exceeded. Consult relevant export organizations or the supplier in case of uncertainty.

- Handle with care.
- Harmful if inhaled or swallowed.
- Keep out of reach of children, uninformed persons, and animals.
- Toxic to fish.
- Protect against humid air or water.
- Store away from food and feed. Store in original container, tightly closed, in a secure and well-ventilated room.

***Disclaimer***

***Although this remedy has been extensively tested under a large variety of conditions, the registration holder does not warrant that it will be efficacious under all conditions because the action and effect thereof may be affected by factors such as abnormal climatic and storage conditions, quality of dilution water, compatibility with other substances not indicated on the label and the occurrence of resistance of the disease against the remedy concerned as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the remedy concerned due to failure of the user to follow the label instructions or to the occurrence of conditions which could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.***

## **PRECAUTIONS:**

### **PRECAUTIONARY STATEMENTS:**

Obtain special instructions before use.  
Do not breathe dust/fume/ gas/mist/vapours/spray.  
Wash skin thoroughly after handling.  
Wear protective gloves/protective clothing/eye protection/face protection.  
IF exposed or concerned: Get medical advice/attention. Get medical advice/attention if you feel unwell.  
Collect spillage.  
Dispose of contents/container in accordance with applicable regulations.

- Avoid inhalation of spray mist.
- Prevent spray drift onto crops not under treatment, grazing or adjacent water sources.
- Avoid contact with skin, eyes, and clothing.
- Wash with soap and water after use and accidental skin contact.
- Do not eat, drink, or smoke whilst applying, mixing, before washing hands and face or change of clothing.
- Immediately after application, completely drain the spray equipment.
- Thoroughly rinse the sprayer and flush the hoses, boom, and nozzles with clean water. Loosen and physically remove visible deposits. Remove and clean nozzles, screens, and filters separately. Flush the entire system with clean water again.
- Do not clean spray equipment near a well, fountain or other water sources.
- Containers and packages must be completely emptied before being disposed of.
- Shake out thoroughly into the mixing or spray tank before destroying the empty container.
- Never re-use the container for any other purpose.
- Do not contaminate food, feed, drinking water and eating utensils.
- Do not contaminate crops, grazing, rivers, or dams with wash water.

## **RELEVANT SUBSTANCES:**

<b>COMPONENT</b>	<b>CAS No.</b>	<b>Concentration</b>
Famoxadone	131807-57-3	23,44%
Cymoxanil	57966-95-7	30,93%
Sodium lignosulfonate, sulfomethylated	68512-34-5	>= 20,0 - < 25,0 %
Aromatic hydrocarbons, C10-13, reaction products with branched nonene, sulfonated, sodium salts	1258274-08-6	>= 3,0 - < 10,0 %
Fumaric acid	110-17-8	>= 1,0 - < 3,0 %
Lignin, Alkali, Reaction Products with Disodium Sulfite and Formaldehyde	105859-97-0	>= 1,0 - < 3,0 %
Sodium chloride	7647-14-5	>= 1,0 - < 3,0 %

## **FIRST AID TREATMENT:**

Never give anything by mouth to an unconscious person.

### **Inhalation**

Move to fresh air. Consult a physician after significant exposure. Artificial respiration and/or oxygen may be necessary.

### **Skin contact**

Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water. In the case of skin irritation or allergic reactions see a physician. Wash contaminated clothing before re-use.

### **Eye contact**

If easy to do, remove contact lens, if worn. Hold eye open and rinse slowly and gently with water for 15-20 minutes. If eye irritation persists, consult a specialist.

### **Ingestion**

Obtain medical attention. DO NOT induce vomiting unless directed to do so by a physician or poison control centre. If victim is conscious: Rinse mouth with water.

## **RESISTANCE MANAGEMENT**

**EQUATION® PRO** is a mixture of cymoxanil and famoxadone fungicides having different modes of action. Both cymoxanil and famoxadone are active against downy mildew strains.

When fungicides with the same mode of action are used repeatedly over several years in the same field, naturally occurring fewer sensitive strains may survive, propagate, and become dominant in that field. A pathogen is considered resistant to a fungicide if it survives a correctly applied treatment at the recommended dose and timing, under normal weather conditions. Development of resistance within a pathogen can be prevented or delayed by alternating or mixing products with a different mode of action.

## **DIRECTIONS FOR USE:**

## **USE ONLY AS DIRECTED**

## **COMPATIBILITY**

**EQUATION® PRO** is compatible with OLYMP® 100 EW (Reg. No. L6063 Act No. 36 of 1947) and with most products which have neutral or acidic reactions, when applied according to their manufacturer's instructions. Do not tank mix with products that have alkaline reaction. Tank mixtures that have not been evaluated for physical compatibility and crop safety must first be tested on a limited scale. Consult the supplier in case of uncertainty.

## **GENERAL**

- **EQUATION® PRO** consists of two unrelated highly active ingredients with unique modes of action namely: cymoxanil, a locally systemic fungicide with preventive and curative action and famoxadone, a preventive, residual fungicide active on spore formation and germination.
- **EQUATION® PRO** is most effective when applied preventively or at the early stages of infections, before symptoms are visible on the plants. Apply sufficient spray mixture per hectare to give a good spray coverage of the treated crops.

- **EQUATION® PRO** must not be applied to any crop suffering from stress as a result of drought, water logging, low temperature, insect attack, nutrient or lime deficiency or other factors reducing crop growth.
- Cymoxanil rapidly penetrates plant tissue while the famoxadone is left on the surface wax layers of the cuticle. **EQUATION® PRO** is rainfast within three hours after application. If rain occurs within three hours after treatment, the product performance may be affected, and the application must be renewed.

### **MIXING INSTRUCTIONS**

- Before using **EQUATION® PRO**, make sure the spraying equipment is clean.
- Half fill the spray tank and start the agitator. Then add the required amount of **EQUATION® PRO** to the spray tank after creaming in a small quantity of water. Continue agitation while topping up the tank and while spraying.

<b>CROP AND DISEASE</b>	<b>QUANTITY PER 100 LITRES WATER</b>	<b>DETAILS OF SPRAY PROGRAMME</b>
<b>TABLE AND WINE GRAPES</b> <b>Downy mildew</b> <i>(Plasmopara viticola)</i>	<p style="text-align: center;">40 g</p>	<p>H.V. Apply as a full cover spray and depending on vine size in 500-1500 l water.</p> <p>Commence applications when the first shoots are 10 cm long. Repeat applications at 10-14 day intervals. Use a shorter (7-10 day) interval when conditions are very favourable for disease development.</p> <p>Do not apply more than 5 <b>EQUATION® PRO</b> applications per season and do not apply within 28 days of harvest. Observe all precautions and warnings and other instructions on this label.</p>

## **WAARSKUWINGS:**

### **RISIKO VERKLARINGS:**

Skadelik indien ingesluk.

Mag moontlike skade aanrig aan vrugbaarheid of die ongebore kind.

Mag skade aan organe, bloed, oë, timus veroorsaak deur langdurige of herhaalde blootstelling.

Baie giftig vir waterlewe met langdurige effek.

ONTHOUDINGSPERIODE: LAAT DIE VOLGENDE MINIMUM AANTAL DAE VERLOOP TUSSEN  
LAASTE TOEDIENING EN OES:

Wyn- en Tafeldruive druiwe: ..... 28 dae

### **Druive en druif/druive produkte, byvoorbeeld wyn, druiwesap en rosyne vir uitvoer:**

Die plaaslike MRL vlak van EQUATION®PRO mag dalk nie van toepassing wees in al die lande waarna SA druiwe en druifprodukte uitgevoer word nie. Corteva Agriscience™ kan derhalwe nie verantwoordelik gehou word indien die invoer toleransie van ander lande oorskry word nie. Raadpleeg die relevante uitvoer organisasies of die verskaffer indien daar onsekerheid is.

- Hanteer versigtig.
- Nadelig wanneer ingeneem of ingeasem word.
- Hou buite bereik van kinders en oningeligte persone.
- Giftig vir visse
- Verhoed blootstelling van die produk aan vogtige lug en water.
- Bêre weg van voedsel en voer. Bêre in die oorspronklike houër, dig toegemaak, in 'n veilige en goed geventileerde plek.

## **VRYWARING**

Alhoewel hierdie middel omvattend onder `n groot verskeidenheid toestande getoets is, waarborg die registrasiehouer nie dat dit onder alle toestande doeltreffend sal wees nie aangesien die werking en effek daarvan beïnvloed kan word deur faktore soos abnormale klimaats- en bergingstoestande; kwaliteit van verdunningswater, verenigbaarheid met ander stowwe wat nie op die etiket aangedui is nie en die voorkoms van weerstand van die siekte teen die betrokke middel sowel as die metode, tyd en akkuraatheid van toediening. Verder aanvaar die registrasiehouer nie verantwoordelikheid vir skade aan gewasse, plantegroei, die omgewing of vir nadelige effek op mens of dier of vir `n gebrek aan prestasie as gevolg van die versuim van die gebruiker om etiketaanwysings na te kom of as gevolg van die ontstaan van toestande wat nie kragtens die registrasie voorsien kon word nie. Raadpleeg die verskaffer in die geval van enige onsekerheid.

## **VOORSORGMAATREËLS:**

### **VOORKOMENDE VERKLARINGS:**

Kry spesiale instruksies voor gebruik.

Moenie stof/rook/gas/mis/dampe/sproei inasem nie.

Was vel deeglik na hantering.

Dra beskermende handskoene/beskermende klere/oogbeskerming/gesigskerm.

INDIEN blootgestel of bekommerd: Kry mediese advies/aandag. Kry mediese advies/aandag as jy onwel voel.

Versamel verspilde produk.

Raak ontslae van inhoud/houer in ooreenstemming met toepaslike regulasies.

- Vermy oormatige inaseming van spuitnewel.
- Verhoed wegdrywing van die spuitnewel na gewasse nie onder behandeling of na naasliggende waterbronne.
- Vermy kontak met vel, oë en klere.
- Was met seep en water na gebruik en toevallige velkontak.
- Moet nie eet, drink of rook tydens toediening, vermenging of voordat hande en gesig gewas is en klere verwissel is nie.
- Dreineer die spuitapparaat volledig na afloop van toediening.
- Was die spuitapparaat en deurspoel die pype, balk en spuitkoppe met skoon water. Verwyder alle sigbare neerslag van die produk. Verwyder en maak die spuitkoppe, siwwe en filters afsonderlik skoon. Deurspoel die volledige stelsel daarna weer met skoon water.
- Moet nie spuitapparaat naby 'n boorgat, fontein of ander waterbronne skoonmaak nie.

Houers en verpakkings moet heeltemal leeggemaak word voordat dit vernietig word.

- Skud die houer deeglik in die mengbak of spuittenk uit voordat leë houer vernietig word.
- Moet nooit die leë houer vir enige doel hergebruik nie.
- Moet nie gewasse, weiding, riviere en damme met waswater besoedel nie.
- Moet nie voedsel, voer, drinkwater en eetgerei besoedel nie.

## **RELEVANTE STOWWE:**

<b>KOMPONENT</b>	<b>CAS No.</b>	<b>Konsentraat</b>
Famoksadoon	131807-57-3	23,44%
Simoksanil	57966-95-7	30,93%
Natriumlignosulfonaat, gesulfometileerd	68512-34-5	>= 20,0 - < 25,0 %
Aromatiese koolwaterstowwe, C10-13, reaksieprodukte met vertakte noneen, gesulfoneerde, natriumsoute	1258274-08-6	>= 3,0 - < 10,0 %
Fumaarsuur	110-17-8	>= 1,0 - < 3,0 %
Lignien, alkali, reaksieprodukte met dinatriumsulfiet en formaldehyd	105859-97-0	>= 1,0 - < 3,0 %
Natriumchloried	7647-14-5	>= 1,0 - < 3,0 %

## **NOODHULPBEHANDELING:**

Moet nooit iets per mond aan 'n bewustelose persoon gee nie.

### **Inaseming**

Beweeg na vars lug. Raadpleeg 'n geneesheer na aansienlike blootstelling. Kunsmatige asemhaling en/of suurstof mag nodig wees.

### **Velkontak**

Trek onmiddellik besmette klere en skoene uit. Was dadelik af met baie water. In die geval van velirritasie of allergiese reaksies, raadpleeg 'n dokter. Was gekontamineerde klere voor hergebruik.

### **Oogkontak**

As dit maklik is om te doen, verwyder kontaklens, indien gedra. Hou oog oop en spoel stadig en saggies uit met water vir 15-20 minute. Indien oogirritasie voortduur, raadpleeg 'n spesialis.

### **Inname**

Kry mediese hulp. Moenie braking forseer nie, tensy 'n geneesheer of gifbeheersentrum beveel om dit te doen. Indien slagoffer by sy bewussyn is: Spoel mond uit met water.

## **VOORKOMING VAN WEERSTANDBIEDENDHEID**

**EQUATION® PRO** is 'n mengsel van simoksanil en famoksadoon swamdoders wat verskillende reaksiemeganismes het. Beide simoksanil en famoksadoon is aktief teen donsige skimmel swamrasse.

Wanneer swamdoders met dieselfde reaksiemeganisme herhaaldelik vir 'n aantal agtereenvolgende jare in dieselfde land gebruik word mag minder vatbare rasse wat natuurlik voorkom oorleef, vermeerder en uiteindelik dominant raak. 'n Patogeen is weerstandbiedend teen 'n swamdoder wanneer dit 'n korrek-toegediende behandeling teen die korrekte dosis en tydsberekening onder normale weersomstandighede oorleef.

Ontwikkeling van weerstandbiedendheid in 'n patogeen kan voorkom of vertraag word deur produkte met verskillende reaksiemeganismes af te wissel of te meng.



**VERENIGBAARHEID**

**EQUATION® PRO** is mengbaar met OLYMP® 100 EW (Reg. Nr. L6063 Wet Nr. 36 van 1947) en met die meeste produkte met neutral of suur werking, indien toegedien volgens die vervaardigers se aanbevelings. Moet nie in tenkmengsels saam met produkte met alkaliese werking gebruik nie. Tenkmengsels met onbekende fisiese verenigbaarheid en gewas veiligheid moet eers op 'n klein skaal beproef word.

**ALGEMEEN**

- **EQUATION® PRO** bestaan uit weë onverwante, hoogs aktiewe bestanddele wat oor unieke reaksiemeganismes beskik naamlik: simoksanil, 'n lokaal sistemiese swamdoder met voorkomende en kuratiewe werking en famoksadoon, 'n voorkomende, residuele swamdoder, wat aktief is teen spoorvorming en -ontkieming.
- Die beste resultate met **EQUATION® PRO** sal verkry word indien dit voorkomend toegedien word voordat siektesimptome op die plant verskyn. Dien genoeg spuitmengsel per hektaar toe sodat deeglike benatting van die teikengewas plaasvind.
- **EQUATION® PRO** moet nie toegedien word op gewasse wat onder stremming verkeer nie; stremming kan veroorsaak word deur droogte, versuiptoestande, lae temperature, insekskade, voedingselement- of kalktekorte of ander faktore wat gewasontwikkeling belemmer.
- Simoksanil word vinnig deur plantweefsel opgeneem, terwyl die famoksadoon op die oppervlak waslae agterbly. **EQUATION® PRO** is bestand teen afwassing deur reën binne drie ure na toediening. Indien reën binne drie ure na toediening voorkom kan die werking van die produk beïnvloed word en moet die bespuiting herhaal word.

**MENGINSTRUKSIES**

- Maak seker dat die spuitapparaat heeltemaal skoon is alvorens **EQUATION® PRO** gebruik word.
- Maak die spuittenk halfvol met water en aktiveer die roerder. Voeg dan die verlangde hoeveelheid **EQUATION® PRO** daarby na aanvanklike verroming daarvan in 'n klein hoeveelheid water. Verseker voortdurende roering terwyl die tenk verder gevul word en tydens toediening.

GEWAS EN SIEKTE	HOEVEELHEID PER 100 L WATER	BESONDERHEDE VAN SPUITPROGRAM
<p><b>WYNDRUIWE EN TAFELDRUIWE</b> Donsige skimmel (<i>Plasmopara viticola</i>)</p>	<p>40 g</p>	<p>H.V. Dien toe as 'n volle dekbespuiting en afhangende van die grootte van die wingerdgroei in 500 – 1500 l suitmengsel per hektaar. Begin toedienings wanneer die lote 10 cm lank is en herhaal elke 10-14 dae. Gebruik 'n korter spuitinterval (7 – 10 dae) wanneer toestande baie gunstig is vir siekteontwikkeling. Moet nie meer as vyf (5) <b>EQUATION® PRO</b> toedienings per seisoen gebruik nie en moet nie binne 28 dae vanaf oes toedien nie. Gehoorsaam alle voorsorgmaatreëls, waarskuwings en ander instruksies op hierdie etiket.</p>