

Biofungicides and Plant Activators Registered in Oregon

| Common or Trade Name | Material | Target | Crops | Action | Application | Manufacturer or distributors |
|--|--|--|---|---------|--|---|
| Actino-Iron | <i>Streptomyces lydicus</i> WYEC 108 plus iron | Discontinued | | | | |
| Actinovate AG Actinovate Lawn and Garden | <i>Streptomyces lydicus</i> WYEC 108 plus iron | Soilborne fungal species of <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Phytophthora</i> , <i>Verticillium</i> , and <i>Fusarium</i> spp. | Turf, ornamental and vegetable crops | F, P | Variable activity on diseases. OK for mummy berry. 1-hr reentry for agricultural use, no reentry listed for lawn and garden use. O | |
| Amplitude ST | <i>Bacillus amyloliquifaciens</i> strain F727 | A seed treatment | Bulb vegetables, legumes, root, and row crops | F, P | Efficacy unknown in PNW production. 4-hr reentry. O | ProFarm 1540 Drew Ave Davis, CA 95618 https://marronebio.com/contact/ |
| AQ10 | <i>Ampelomyces quisqualis</i> | Discontinued | | | | |
| Asperello | <i>Trichoderma asperellum</i> strain T34 | Root diseases caused by <i>Fusarium</i> , <i>Pythium</i> , and <i>Phytophthora</i> | Ornamentals in greenhouses | A, F, P | Efficacy unknown in PNW production. 4-hr reentry. | BIOBEST USA Inc. 8529 Goddard Road Suite 100, Romulus, MI 48174 |
| Apire | <i>Candida oleophila</i> | Discontinued | | | | |
| Auxigro WP | GABA: gamma aminobutyric acid | Discontinued | | | | |
| Aviv | <i>Bacillus subtilis</i> strain IAB/BS0 | Multiple modes of action | Fruit, field, hop, nut, ornamentals, and vegetable crops | A, F, P | Efficacy unknown in PNW production. 4-hr reentry. O | SEIPASA; S.A. C/ Almudevar; 2 ES 22240 Tardienta; (Huesca) Spain; www.seipasa.com |
| Ballad Plus | <i>Bacillus pumilus</i> strain QST 2808 | Discontinued | | | | |
| Bayer Advanced Natria Disease Control RTU | <i>Bacillus subtilis</i> strain QST 713 | Discontinued | | | | |
| Bexfond | <i>Bacillus amyloliquifaciens</i> subspecies <i>plantarum</i> strain FZB42 | Soilborne diseases incited by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Sclerotinia</i> , <i>Verticillium</i> , and <i>Phytophthora</i> spp. | Many crops including vegetables, cereals, herbs, hop, berries, turf, and ornamental crops | F, P | Apply via drench prior to planting, at planting, or immediately after planting; reapply after seedling stage. Apply the suspension within 8 hours of mixing, and ensure the pH remains between 5 and 8.5. Ensure an adequate amount of water is used to allow biofungicide to reach plant roots. 4-hr reentry. O | Corteva Agriscience LLC 9330 Zionsville Road Indianapolis IN 46268 |
| Bio-Save 10 LP | <i>Pseudomonas syringae</i> strain ESC-10 | Postharvest decay: blue mold, gray mold, mucor rot, and potato dry rot and silver scurf | Citrus, cherries, potatoes, and pome fruit | P | For both seed and storage potatoes. On pome, apply prior to waxing. Do not add to chlorinated water. Apply fungicide after applying Bio-Save. | Jet Harvest Solutions P.O. Box 915139 Longwood, FL 32791 877-866-5773 Fax 407-298-2377 |
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| Bio-Tam | <i>Trichoderma asperellum</i> (ICC 012) and <i>Trichoderma asperellum</i> (ICC 080) | Diseases caused by <i>Armillaria</i> spp., <i>Fusarium</i> spp., <i>Phytophthora</i> spp., <i>Pythium</i> spp., <i>Rhizoctonia</i> spp., <i>Rosellinia</i> spp., <i>Sclerotinia</i> spp., <i>Sclerotium rolfsii</i> , <i>Thielaviopsis</i> , and <i>Verticillium</i> spp. | For use on fruit, herb, vegetable, nut, and field crops. | F, P | Can be banded or applied as a broadcast or in-furrow application, transplant or cutting dip, and soil spray or drench. 1-hr reentry. O | SePRO Corporation 11550 N. Meridian St., Ste 600, Carmel IN 46032 USA |
| Bio-Trek | <i>Trichoderma harzianum</i> | Discontinued name | | | | |
| BlightBan | <i>Pseudomonas fluorescens</i> | Discontinued | | | | |
| Bloomtime | <i>Pantoea agglomerans</i> strain E325 | Discontinued | | | | |
| Blossom Protect | <i>Aureobasidium pullulans</i> strains DSM 14940 and 14941 | Fire blight prevention | Pome fruit | F, P | For fire blight management. O | SAN Group Biotech US, Inc. 1260 Avenida Chelsea, Vista, CA 92081 USA Phone: (800) 876-2767 |
| Bonide Revitalize Biofungicide | <i>Bacillus amyloliquefaciens</i> strain D747 | Discontinued name | | | | |
| Botector | <i>Aureobasidium pullulans</i> DSM 14940 and 14941 | Fairly broad spectrum | Pome, grape, berries and stone fruit | F, P | For fruit rot. O | SAN Group Biotech US, Inc. 1260 Avenida Chelsea, Vista, CA 92081 USA Phone: (800) 876-2767 |
| BotryStop | <i>Urocladium oudemansii</i> strain U3 | Suppression of <i>Botrytis</i> , <i>Sclerotinia</i> , and other pathogens | Field, fruit, nut, ornamental, and vegetable crops | F, P | Efficacy unknown in PNW production 4-hr reentry. | BioWorks, Inc. 100 Rawson Rd, Suite 205, Victor, NY 14564; 800-877-9443 www.bioworksinc.com |
| Cease | <i>Bacillus subtilis</i> strain QST 713 | Broad spectrum | Ornamentals, vegetables, fruit, greenhouse and nursery crops | Bact, F, P | Applications to production greenhouse tomatoes showed efficacy in Oregon. 4-hr reentry. O | BioWorks, Inc. 100 Rawson Rd, Suite 205, Victor, NY 14564; 800-877-9443 www.bioworksinc.com |
| Companion | <i>Bacillus subtilis</i> strain GB03 | <i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> , and <i>Phytophthora</i> | Greenhouse and nursery crops | A, F, P | Efficacy unknown in PNW production. Can be used in conjunction with seed treatment chemicals. 4-hr reentry. O | Plant Health Intermediate, Inc. 1550 East Old 210 Highway Liberty, MO 64068 800-648-7626 |
| Contans WG | <i>Coniothyrium minitans</i> strain con/m/91-08 | <i>Sclerotinia sclerotiorum</i> and <i>Sclerotinia minor</i> | Vegetables, ornamentals, and row crops in soil | F | Efficacy is fair in PNW production. Spores of <i>C. minitans</i> germinate and attack resting structures (sclerotia). 4-hr reentry. O | Sipcam Agro USA, Inc. 2525 Meridian Parkway Suite 350 Durham, NC 27713 |
| DiTera DF | <i>Myrothecium verrucaria</i> strain AARC-0255 | For nematode control | Registered for many crops. | N | Little is known about efficacy. O | Valent BioSciences Corporation 870 Technology Way Libertyville, IL 60048 |

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| Double Nickel formulations | <i>Bacillus amylolique-faciens</i> strain D747 | Broad spectrum | Registered for many diseases in many crops. | F, P | Variable efficacy. 4-hr reentry. O | Certis USA, L.L.C. 9145 Guilford Road Suite 175 Columbia, MD 21046 |
| EcoSwing | Extract of <i>Swinglea glutinosa</i> | <i>Botrytis</i> , powdery mildew, etc | Many crops | F, P | Efficacy unknown in PNW production 4-hr reentry. O | Gowan 370 South Main St. Yuma, AZ 85364 info@gowanco.com www.gowanco.com/ |
| Employ formulations | Harpin protein | Activates plant's defense system and suppresses nematode egg production | Fruits, field crops, turf and ornamentals, vegetables, mint, grasses grown for seed, and greenhouse crops | A | Not good on perennial crop diseases. Wettable dry granule for foliar spray; contact all new foliage. Do not use with chlorinated water. Water's pH must be above 5 and below 10. Use product on the same day it is mixed with water and use opened packages within 3 weeks. 4-hr reentry. | Plant Health Care, Inc. 242 South Main St., Ste 216 Holly Spring NC 27540 USA; 1-800-421-9051; www.planthealthcare.com |
| Fungisei | <i>Bacillus subtilis</i> strain IAB/BS03 | Stimulates pest suppression system | Fruit, field, nut, ornamentals, and vegetable crops | A | Efficacy unknown in PNW production. 4-hr reentry. O | SEIPASA; S.A. C/ Almudevar 2 ES 22240 Tardienta (Huesca) Spain www.seipasa.com |
| Galltrol-A | <i>Agrobacterium radiobacter</i> strain 84 | <i>Agrobacterium tumefaciens</i> | Fruit, nut, and ornamental nursery stock | Bact, P | Root or cutting dip. Not for grape. | AgBioChem, Inc. Orinda, CA 510-254-0789 www.agbiochem.com |
| Heads Up | Extract of <i>Chenopodium quinoa saponins</i> | Activates plant's defense system | Field crops and tomato | A | Efficacy unknown in PNW production 12-hr reentry. O | Heads Up Plant Protectants, Inc., 3002 Millar Avenue Saskatoon, Saskatchewan S7K 5X9 Toll Free: 1-866-368-9306 |
| Howler | <i>Pseudomonas chlororaphis</i> strain AFS009 | Broad spectrum | For use on fruit, herb, vegetable, ornamentals, and field crops. | P | Can be applied as a foliar spray, soil drench, soil incorporation, banded spray, broadcast, in-furrow, transplant water or tray drench, and seed treatment or a seed piece treatment. 4-hr reentry. O | AgBiome Innovations, Inc. 104 T.W. Alexander Dr. Research Triangle Park, NC 27709 |
| Kodiak Concentrate | <i>Bacillus subtilis</i> strain GB-03 | Discontinued | | | | |
| LALStop G46 | <i>Clonostachys rosea</i> strain J1446 | Broad spectrum | For use on fruit, herb, vegetable, ornamentals, and field crops. | A, F | Can be applied as a foliar spray, soil drench, soil incorporation, banded spray, broadcast, in-furrow, transplant water or tray drench, and seed treatment or a seed piece treatment. 4-hr reentry. O | Lallemand Specialties Inc. 6120 West Douglas Avenue Milwaukee, WI 53218 USA 844-590-7781 |
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| LALStop K61 | <i>Streptomyces</i> sp. strain K61 | Broad spectrum | For use on fruit, herb, vegetable, ornamentals, and field crops. | A, F | Can be applied as a foliar spray, soil drench, soil incorporation, banded spray, broadcast, in-furrow, transplant water or tray drench, and seed treatment or a seed piece treatment. 4-hr reentry. O | Lallemand Specialties Inc., 6120 West Douglas Avenue, Milwaukee, WI 53218 USA; 844-590-7781 |
| LifeGard | <i>Bacillus mycoides</i> isolate J | Activates plant's defense system | Fruit, field, nut and vegetable crops | A, F | Efficacy unknown in PNW production. 4-hr reentry. O | Certis USA LLC 9145 Guilford Road, Suite 175, Columbia, MD 21046 |
| Majestene | Dead <i>Burkholderia</i> strain A396 | Suppresses nematodes and insects | Strawberry, field and vegetable crops | N | Efficacy unknown in PNW production. 4-hr reentry. Dead <i>Burkholderia</i> strain A396. O | ProFarm, 1540 Drew Ave. Davis CA 95618 https://marronebio.com/contact/ |
| MeloCon WG | <i>Paecilomyces lilacinus</i> strain 251 | For plant parasitic nematode control | Vegetable, fruit, and nut crops | N, P | Efficacy unknown in PNW production. O | Certis USA 9145 Guilford Rd., Suite 175, Columbia MD 21046 800-250-5024 |
| Messenger | Harpin protein | Discontinued name | | | | |
| Monterey Complete Disease Control | <i>Bacillus amylolique-faciens</i> strain D747 | Broad spectrum | Many crops | E, P | Efficacy unknown in PNW. H O | Lawn and Garden Products P.O. Box 35000 Fresno, CA 93745 info@montereylawn-garden.com |
| Mycostop formulations | <i>Streptomyces griseoviridis</i> strain K61 | <i>Fusarium</i> spp., <i>Alternaria brassicicola</i> , <i>Phomopsis</i> spp., <i>Botrytis</i> spp., <i>Pythium</i> spp., and <i>Phytophthora</i> spp. | Field, ornamental, and vegetable crops | E, P | Efficacy is fair in PNW production. Can be applied as seed treatment, transplant or cutting dip, and soil spray or drench. If used as a seed treatment to control <i>Fusarium</i> spp., seed must be free of pathogenic <i>Fusarium</i> spp. before applying Mycostop. O | Lallemand Plant Care 6120 West Douglas Ave. Milwaukee, WI 53218 |
| Natria Disease Control RTU | <i>Bacillus subtilis</i> strain QST 713 | Broad spectrum | For use on fruit, herb, vegetable, ornamentals, and nut crops in home gardens. | E, P | Can be applied as a foliar spray. H O | SBM Life Science Corp., 1001 Winstead Drive, Suite 500, Cary, NC 27513; www.BioAdvanced.com |
| Nexy | <i>Candida oleophila</i> strain O | <i>Botrytis</i> and <i>Penicillium</i> | For apples and pears. | E, P | Postharvest dip or drench. | Lesaffre Yeast Corp. 7475 W. Main Street Milwaukee, WI 53214 |
| Nogall | <i>Agrobacterium radiobacter</i> strain K102 | Crown gall | For use on non-food or non-food bearing plants only. 4-hr reentry. | P | Dip or spray (inoculate) germinating seeds, roots and stems, and cuttings. | BASF Corporation 26 Davis Dr. Research Triangle Park, NC 27709 |
| Norbac | <i>Agrobacterium radiobacter</i> | Discontinued | | | | |
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| Nortica | <i>Bacillus firmus</i> strain I-1582 | Discontinued | | | | |
| Obtego | <i>Trichoderma asperellum</i> (ICC 012) and <i>T. gamsii</i> (ICC 080) | Broad spectrum soilborne diseases | Many crops | F, P | Efficacy unknown in PNW production. 4-hr reentry. O | SePRO Corp. 11550 N. Meridan St. Carmel, IN 46032 www.sepro.com |
| PlantShield | <i>Trichoderma harzianum</i> Rifai strain T-22 | Discontinued (See T-22 in this table) | | | | |
| PreFence | <i>Streptomyces</i> sp. strain K61 | Discontinued | | | | |
| Prestop | <i>Gliocladium catenulatum</i> strain J1446 | Damping-off, root rot, <i>Botrytis</i> , and <i>Didymella</i> . Can also suppress clubroot. | Various vegetables, herbs, spices, ornamentals, shrubs, trees, and turf | F, P | Efficacy not widely known in PNW. O | Lallemand Plant Care, 6120 West Douglas Ave. Milwaukee, WI 53218 www.lallemandplant-care.com |
| Prevont | <i>Bacillus subtilis</i> strain IAB/BS03 | Discontinued | | | | |
| ProAct | Harpin protein | Activates plant's defense system and suppresses nematode egg production | For certain field and vegetable crops | A | Not good on perennial crop diseases. Wettable dry granule for foliar spray; contact all new foliage. Do not use with chlorinated water. Water's pH must be above 5 and below 10. Use product on the same day it is mixed with water and use opened packages within 3 weeks. 4-hr reentry. | Plant Health Care, Inc. 242 South Main St, Ste 216 Holly Springs, NC 27540 USA 1-800-421-9051 www.planthealthcare.com |
| Regalia | Extract of giant knotweed (<i>Reynoutria sachalinensis</i>) | Activates plant's defense system | Ornamentals, fruit, hop, herbs, nut, and vegetable crops | A | Some activity on mummy berry and powdery mildew. Use on 7-day intervals. Do not combine with other materials without testing compatibility. 4-hr reentry. O | ProFarm, 1540 Drew Ave. Davis CA 95618 https://marronebio.com/contact/ |
| Rhapsody AS | <i>Bacillus subtilis</i> strain QST 713 | Certain foliar diseases including downy and powdery mildew, <i>Botrytis</i> , and bacterial problems | Various ornamentals and selected greenhouse crops | F, P | Efficacy not well studied in PNW production. Aqueous suspension used as a foliar spray. 4-hr reentry. O | Bayer CropScience LP 800 N. Lindbergh Blvd. St. Louis MO 63167 |
| Rhizopro | <i>Bacillus subtilis</i> var. <i>amyloliquefaciens</i> strain FZB24 | Discontinued | | | | |
| RootShield formulations | <i>Trichoderma harzianum</i> T-22 | Root disease caused by <i>Rhizoctonia solani</i> , <i>Fusarium</i> spp., <i>Pythium</i> spp. | Selected ornamentals, vegetables, fruit, nut and greenhouse crops | F, P | For use in the US and Canada as soil applications (drench, in soil furrow, potting soil and broadcast) and seed treatments. See label for reentry restrictions. O | BioWorks, Inc. 100 Rawson Rd., Suite 205 Victor, NY 14654 800-877-9443 www.bioworksbio-control.com |

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| RootShield Plus formulations | <i>Trichoderma harzianum</i> Rifai strain T-22 and <i>Trichoderma virens</i> strain G-41 | Root diseases caused by <i>Rhizoctonia solani</i> , <i>Fusarium</i> spp., and <i>Pythium</i> spp. | For use on food crops, ornamentals, landscape plants, and ornamental trees, including tree seedlings. | F, P | For use in soil applications (drench, in soil furrow, potting soil and broadcast) and seed treatments. See label for reentry restrictions. O | BioWorks, Inc. 100 Rawson Rd., Suite 205 Victor, NY 14654 800-877-9443 www.bioworksbio-control.com |
| Serenade formulations | <i>Bacillus subtilis</i> strain QST 713 | Gray mold, powdery mildews, and other foliar diseases | Fruit, vegetable, field, and selected greenhouse crops | F, P | Medium powdery mildew control but poor on mummy berry. Wettable powder as a foliar spray. 4-hr reentry. O | Bayer CropScience LP 800 N. Lindbergh Blvd. St. Louis MO 63167 |
| Serifel formulations | <i>Bacillus amyloliquifaciens</i> strain MBI 600 | Broad spectrum | For use on fruit, herb, vegetable, nut, and field crops. 4-hr reentry. | F, P | Can be applied as a foliar spray, a directed or banded spray, a soil or plant drench, as an in-furrow application, or through chemigation. | BASF Corporation 26 Davis Drive Research Triangle Park, NC 27709 |
| SoilGard | <i>Gliocladium virens</i> strain GL-21 | Damping-off or root rot caused by <i>Rhizoctonia</i> and <i>Pythium</i> spp. | For use on food crops and ornamentals in greenhouses, nurseries, interiorscapes, and outdoors. | F, P | For use in soil applications (drench, root dip, through irrigation, potting soil and broadcast). No reentry restrictions. O | Certis USA, L.L.C. 9145 Guilford Rd. Suite 175 Columbia, MD 21046 |
| Sonata | <i>Bacillus pumilus</i> strain QST 2808 | A wide range of foliar diseases | Fruit, nut, vegetable, field, and selected greenhouse crops | F, P | Liquid formulation used as a foliar spray. 4-hr reentry. O | Bayer CropScience LP 800 N. Lindbergh Blvd. St. Louis MO 63167 |
| Spot-Less | <i>Pseudomonas aureofaciens</i> | Discontinued | | | | |
| Stargus | <i>Bacillus amyloliquifaciens</i> strain F727 | Broad-spectrum biofungicide/ bactericide | Vegetable, small fruit, and ornamental crops | F, P | Efficacy unknown in PNW production. 4-hr reentry. O | ProFarm, 1540 Drew Ave. Davis CA 95618 https://marronebio.com/contact/ |
| Subtilex NG | <i>Bacillus subtilis</i> strain MBI 600 | Root disease caused by <i>Fusarium</i> , <i>Rhizoctonia</i> , and <i>Pythium</i> spp. as well as powdery mildews | Greenhouse flowers and selected greenhouse vegetables | F, P | Efficacy unknown in PNW production but found not effective in two trials out of Connecticut. 4-hr reentry. O | BASF Corporation 26 Davis Drive Research Triangle Park NC 27709 |
| T-22 | <i>Trichoderma harzianum</i> Rifai strain T-22 | Discontinued name. | | | | |
| Taegro 2 | <i>Bacillus subtilis</i> var. <i>amyloliquifaciens</i> strain FBZ24 | For suppression of certain soilborne diseases caused by <i>Fusarium</i> and <i>Rhizoctonia</i> | Fruit, vegetable, field, ornamentals, and selected greenhouse crops | F, P | Efficacy not well studied in PNW production. Wettable powder as a foliar spray, dip, or drench. 24-hr reentry unless soil incorporated. O | Novozymes Biologicals Inc. 5400 Corporate Circle Salem, VA 24153 888-744-5662 |
| Tenet WP | <i>Trichoderma asperellum</i> (ICC 012) and <i>Trichoderma gamsii</i> (ICC 080) | For protection against a number of soilborne pathogens. | Fruit, herb, vegetable, crops, nut, turf, and ornamentals | F, P | Can be banded or applied as a broadcast or in-furrow application, trans-plant or cutting dip, and soil spray or drench. 1-hr reentry. O | Gowan Co. LLC PO Box 5569 Yuma, AZ 85366-5569 |
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| Theia | <i>Bacillus subtilis</i> strain AFS032321 | Broad spectrum | For use on fruits, vegetables, hemp, hop, nuts, and field crops. 4-hr reentry. | F, P | Can be applied as a foliar spray, a directed or banded spray, a soil or plant drench, root dip or tray drench, as an in-furrow application, or through chemigation. | AgBiome Innovations, Inc. 104 T.W. Alexander Drive, Research Triangle Park, NC 27709 |
| TopShield | <i>Trichoderma harzianum</i> | Discontinued | | | | |
| Triathlon BA | <i>Bacillus amyloliquifaciens</i> strain D747 | Broad spectrum | Agricultural crops, ornamental, and nursery plants, and turfgrass | F, P | Ground, aerial, or chemigation. O | OHP, Inc. PO Box 551230 Mainland PA 19451 (800) 356-4647 |
| Vacciplant | Laminarin | Stimulates pest suppression system | For use on fruit, herb, hop, vegetable, ornamentals, and field crops. | A | Efficacy unknown in PNW production. 4-hr reentry. | Arysta Lifescience North America, LLC 15401 Weston Parkway, Suite 150; Cary, NC 27513 |
| Victus | <i>Pseudomonas fluorescens</i> | Bacterial pathogens | For mushroom production. | Bact. | Not currently registered in Oregon. Can be applied as a foliar spray. | Mauri Laboratories Pty Ltd. 9 Moorebank Avenue; Moorebank NSW 2170 Australia |
| WRC-AP-1 | <i>Gliocladium virens</i> strain GL-21 | Discontinued | | | | |
| Zen-O-Spore | <i>Urocladium oudemansii</i> strain U3 | Suppression of <i>Botrytis</i> , <i>Sclerotinia</i> , and other pathogens | Fruit and nut crops | F, P | Efficacy unknown in PNW production 4-hr reentry. O | Botry-Zen (2010) Limited 156 Frederick Street, P.O. Box 1777, Dunedin 9054, New Zealand www.botryzen.co.nz |
| Zio | <i>Pseudomonas chlororaphis</i> strain AFS009 | Broad spectrum | For use on turfgrass and landscapes, on vegetable and fruit transplants, and on landscape and ornamental transplants. 4-hr reentry. | F | Can be applied as a foliar spray, soil drench, in furrow spray, transplant spray or dip, cuttings or bare root dip, hydroponic or chemigation application in field, greenhouse, interiorscape, lathhouse, nursery, or shadehouse use sites. It may also be mixed with potting mix or applied dry in furrow. | SePRO Corporation 11550 North Meridian Street, Suite 600 Carmel, IN 46032 |

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