BASF
The Chemical Company

Sprint® 330 and Sprint® 138

High Performance Iron Chelate for Foliar and Soil Applications

General Description

Iron is a key component of many critical enzymes in plants. It is one of the essential elements required for biological nitrogen fixation, sulfur metabolism and photosynthesis. It is also a critical element for oxygen transport in chlorophyll production.

Iron chlorosis occurs when plants are unable to extract sufficient iron from the soil. This condition commonly occurs in:

- Soils that are high in pH, calcareous or have heavy clay that ties up iron.
- Plants that have a limited root system due to disease, pest or environmental stresses.
- Soils with high sand content and poor nutrient-holding capacity.

In the early stages of iron deficiency, new growth foliage exhibits interveinal chlorosis, in which leaf veins remain green but plant leaves are light green to yellow. In severe cases, leaves turn white and plants may die.

How can iron deficiency be prevented? Including Sprint® iron chelate products in your plant management program helps maintain and protect iron availability in a wide variety of problem soils.

Sprint iron chelate products protect iron by preventing it from binding with other compounds in the soil, allowing it to stay in a form readily available for plant use.

Sprint 330 10% fully chelated DTPA iron performs best in slightly acidic to slightly alkaline soils with a pH of up to 7.5. Sprint 138 6% fully chelated EDDHA iron is preferred in the most challenging soils that are alkaline or calcareous.

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Packaging

Sprint® 138

Available in 6 x 5 pound boxes.

Sprint® 330

Available in 6 x 5 pound and 50 pound boxes.

With the highest *ortho-ortho* (5.2%) content available in the industry, Sprint® 138 iron chelate provides plant available forms of iron for an extended period of time. Numerous studies have shown the EDDHA *ortho-ortho* isomer is superior in performance, especially in alkaline and calcareous soils.

Directions for Use

Sprint iron chelate products are effective when directed to the root zone in soil applications, and may be incorporated mechanically or through rainfall, irrigation, soil drench or deep root feeding.

With foliar applications, a thorough cover spray to plant foliage generally provides best results. In most situations, a spray adjuvant may be added up to 0.5% by volume to ensure uniform coverage. As a general rule, Sprint iron chelate products should not be mixed with crop oil concentrates.

Sprint iron chelate products offer flexibility when tank-mixing with plant growth regulators (PGRs), as well as fertilizers that contain phosphorus or slow release nitrogen. For turf, Sprint® 330 iron chelate can be tank-mixed with PGRs such as Primo® Maxx®. (Refer to Primo Maxx or other PGR labels for specific use directions.)

Formulated as wettable powders, Sprint iron chelate products should be thoroughly mixed. If spray tank agitation is limited, premix Sprint iron chelate products in a pail until dissolved and add to the spray tank solution. Do not pre-mix Sprint iron chelate products with pesticide or fertilizer concentrates.

For use in a greenhouse irrigation system, to achieve a rate of 4 ounces Sprint per 100 gallons water, mix a concentrate stock solution consisting of 4 ounces Sprint per gallon of water. Set injector ratio to 1:100 and pump from the concentrate stock solution.

This bulletin is intended as a general guide only. Before using Sprint iron chelate products, consult the product label for specific application directions.

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Sprint® 330 + MN

High Performance Iron Chelate and Manganese Micronutrient Blend for Professionally Managed Turfgrass

General Description

Sprint® 330+Mn high performance iron chelate and water-soluble manganese micronutrient blend helps correct specific mineral deficiencies in slightly acid to slightly alkaline soil.

The unique combination of Sprint 330+Mn micronutrient blend delivers an agronomically favored 1:2 ratio of plant available iron and manganese micronutrients.

Field research trials have shown that supplemental additions of chelated iron in combination with manganese improve overall turf quality and performance under demanding growing conditions. Benefits include healthier turf growth, as well as better resistance to and recovery from disease and insect damage. The result is superior performing turf.

Sprint 330+Mn micronutrient blend provides up to 30 days of supplemental micronutrient feeding to the plants.

Directions for Use

Foliar applications should be made as thorough cover sprays to turfgrass foliage. The addition of up to 0.5% spray adjuvant (1 pint per 25 gallons spray volume) to the solution may help insure uniform distribution.

Using Turf Mark® spray pattern indicators may help avoid skips and overlaps during the application process.

To facilitate mixing, slowly introduce Sprint 330+Mn into at least half the required spray volume while agitating. For general turf, apply Sprint 330+Mn at the rate of 6-12 ounces per 1,000 square feet in sufficient carrier volume to get uniform coverage. Allow at least 30 days between applications.

The addition of 0.1 pound ammoniacal Nitrogen per 1,000 square feet can enhance iron uptake.

Iron (Fe) derived from DTPA chelated iron:	5.4%
Manganese (Mn) derived from water-soluble manganese:	12.8%

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Packaging

Available in 50 pound boxes.

Recommended Rates

Treatment Area	Application	Sprint® 138 Rate	Sprint® 330 Rate
Turf Bluegrass, St. Augustine, Bermudagrass, Bentgrass, Fescues, Ryegrass, Zoysiagrass, Centipede Grass **NOTE:** Addition of 0.1 lb. of ammoniacal N / 1,000 ft^2 may enhance iron uptake in foliar applications.	**Foliar**	2 oz. / 1,000 ft^2	**General turf:** 2-4 oz. / 1,000 ft^2 in sufficient carrier to get uniform coverage. **Golf greens:** 1-4 oz. / 1,000 ft^2 in sufficient carrier to get uniform coverage. Allow at least 30 days between applications if higher rates are used. **Growth regulators:** 1-3 oz. / 1,000 ft^2 in sufficient carrier to get uniform coverage.
	Soil [1]	—	1 lb. / 1,000 ft^2 alone or in combination with fertilizer in sufficient carrier to get uniform coverage.
Ground Cover Dichondra, Ivy, Pachysandra, etc.	**Soil** [1]	*Sprint 330 recommended.*	1 lb. / 1,000 ft^2. Apply uniformly.
Roses, Flowering Shrubs Azalea, Honeysuckle, Crepe Myrtle, Spirea, Forsythia, Gardenia, and similar plants	**Foliar**	—	1 lb. / 100 gal. of water (1 ½ tsp. / gal.) Thoroughly spray.
	Soil [1]	2 oz. for small shrubs; 4 oz. for large shrubs. Apply directly beneath or around shrubs.	**Broadcast:** 2-4 oz. (6-12 Tbs.) / 100 ft^2 **Individual:** 1 tsp. for plants to 2 ft. high; 2 tsp. for plants 2-3 ft. high; 3 tsp. for plants 4-8 ft. high. Treat under canopy.
	Containers [1]	¼ tsp. / 8 in. pot; ½ tsp. / 12 in. pot	¼ tsp. / 8 in. pot; ½ tsp. / 12 in. pot
	Greenhouse	—	Inject through fertilizer system at 1:100 pump setting. Slurry Sprint 330 concentrate at 4-8 oz. / gal. **NOTE:** At higher rates wash off excess Sprint from leaf surface on sensitive plants to avoid plant damage.
Ornamentals Aster, Canna, Geranium, Chrysanthemum, Daylily, Iris, Nasturtium, Petunias, Verbena and other similar annuals and perennials	**Soil** [1]	20 oz. / 1,000 ft^2	*For specific plant rates, see "Flowers".*
	Containers [1]	¼ tsp. / 8 in. pot; ½ tsp. / 12 in. pot	
Flowers Carnations, Gladiolus, Chrysanthemum, Peonies, Petunias, Snapdragons, Zinnias and other herbaceous plants	**Foliar**	—	½ lb. / 100 gal. water (¾ tsp. / gal.) Apply to runoff.
	Soil [1]	**Gladiolus only:** 80 oz. / 1,000 ft^2 row	**Broadcast:** 1-2 oz. (3-6 Tbs.) / 100 ft^2 **Individual:** ½ tsp. / plant
	Containers [1]	**Gladiolus only:** ¼ tsp. / 8 in. pot; ½ tsp. / 12 in. pot	1/8 tsp. / 8 in. pot; ¼ tsp. / 12 in. pot
	Greenhouse	—	Inject through fertilizer system at 1:100 pump setting. Slurry Sprint 330 concentrate at 4-8 oz. / gal. **NOTE:** At higher rates wash off excess Sprint from leaf surface on sensitive plants to avoid plant damage.
Evergreens, Leafy Shrubs Arborvitae, Boxwood, Holly, Euonymous, Juniper, Yew, Laurel, Privet, Spruce, Taxus, etc.	**Foliar** [1]**, Soil** [1]**, Containers,**	*Sprint 330 recommended.*	*Same as "Roses, Flowering Shrubs".*
	Greenhouse		Inject through fertilizer system at 1:100 pump setting. Slurry Sprint 330 concentrate at 1 lb. / gal.

[1] For best results, apply as drench. Water in well. Rinse leaf blades. [2] Apply as a band or sidedress application. [3] Apply as thorough cover spray.

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Recommended Rates, continued

Treatment Area	Application	Sprint® 138 Rate	Sprint® 330 Rate
Shade Trees, Fruit Trees, Nuts Apple, Apricot, Maple, Ash, Plum, Elm, Camphor, Pear, Dogwood, Avocado, Prune, Russian Olive, Mimosa, Pin Oak, Peach, Pecan, Cherry, Sycamore, Magnolia, Walnut, Sandcherry, and other shade trees, fruit trees and nuts	**Foliar**	*See rates for specific plants listed on the next page.*	1 lb. / 100 gal. water (1 ½ tsp. / gal.). Apply to runoff. On bearing trees, apply prior to bloom or after harvest. Do not apply with crop oils. **Growth regulators:** 1-3 oz. / 1,000 ft² in sufficient carrier to get uniform coverage.
	Soil [1]		3-6 Tbs. / in. of trunk diameter at chest height. Apply uniformly under canopy.
	Containers [1]		¼ tsp. / 8 in. pot; ½ tsp. / 12 in. pot
Trees Sycamore, Chinese and American Elm, Shortleaf Pine, Arborvitae, Juniper, Ponderosa Pine, Dwarf Apple, Chinese Mimosa, Pin Oak, and similar	**Soil** [1]	Up to 2 oz. / tree for each in. of tree diameter at chest height. Apply in spring.	*For specific plant rates, see "Shade Trees, Fruit Trees, Nuts."*
	Containers [1]	¼ tsp. / 8 in. pot; ½ tsp. / 12 in. pot	
Small Fruits Blackberries, Strawberries, Grapes, Boysenberries, Dewberries, Loganberries, Raspberries and Blueberries	**Foliar** [3]	**Grapes only:** 1 ½ lbs. / 100 gal. water	—
	Soil [2]	½-1 lb. / 100 ft. of row	½ - 1 lb. / 100 ft. of row. Apply early in spring when deficiencies occur.
	Containers [1]	—	¼ tsp. / 8 in. pot or ½ tsp. / 12 in. pot
	Greenhouse	—	Inject through fertilizer system at 1:100 pump setting. Slurry Sprint 330 concentrate at 1 lb. / gal.
Citrus	**Foliar** [3]	1 lb. / 100 gal. water. Apply any time after harvest of main crop. Do not apply while main crop is on tree. Do not use with oils or miticides.	1 lb. / 100 gal. water. Apply any time after harvest of main crop and until bloom of succeeding crop. Do not apply while main crop is on tree. Do not use with oils or miticides.
	Soil	**Light Soil:** ⅓-½ lb. / tree **Heavy Soil:** ½-1 lb. / tree Broadcast evenly with the drip line prior to winter flush of growth. **Trees on Annual Maintenance Program**: ¼-⅓ lb. / tree	1-2 lbs. / tree alone or with fertilizer. For trees on annual preventative program, apply ¼ lb. / tree. May be applied in irrigation water.
Almonds, Apples, Apricots, Cherries, Nectarines, Pecans, Plums, Prunes, Walnuts	**Foliar** [3]	1-1 ½ lbs. / 100 gal. water. Apply prior to bloom or after harvest. Do not use with oils.	*For specific plant rates, see "Shade Trees, Fruit Trees,Nuts."*
Peanuts, Beans, Corn, Mustard, Spinach	**Soil** [2]	Up to 2 oz. / 1,000 ft² (5 lbs. / ac.)	**Corn, mustard, spinach only:** Up to 3 ⅔ oz. / 1,000 ft² (10 lbs. / ac.)
Cabbage, Cauliflower, Celery, Lettuce	**Soil** [2]	Up to 2 oz. / 1,000 ft² (5 lbs. / ac.)	3 2/3 oz. / 1,000 ft² (10-20 lbs. / ac.)

[1] For best results, apply as drench. Water in well. Rinse leaf blades. [2] Apply as a band or sidedress application. [3] Apply as thorough cover spray.

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Recommended Rates, continued

Treatment Area	Application	Sprint® 138 Rate	Sprint® 330 Rate
Cabbage, Cauliflower, Celery, Lettuce	**Soil [2]**	Up to 2 oz. / 1,000 ft^2 (5 lbs. / ac.)	3 $^2/_3$ oz. / 1,000 ft^2 (10-20 lbs. / ac.)
Beans, Black-Eyed Peas	**Soil [2]**	*Black-eyed peas same as "Carrots."*	3 $^2/_3$-7 $^1/_3$ oz. / 1,000 ft^2 (10-20 lbs. / ac.)
Carrots, Cucumbers, Eggplants, Melons, Onions, Parsnips, Peas, Peppers, Potatoes, Radishes, Squash, Tomatoes and Turnips	**Foliar [3]**	½ oz. / 1,000 ft^2 (1 ½ lbs. / ac.) Repeat in 2-3 weeks if necessary.	$^1/_3$ oz. / 1,000 ft^2 (1 lb. / ac.) Repeat in 2-3 weeks if necessary.
	Soil [2]	Up to 2 oz. / 1,000 ft^2 (5 lbs. / ac.)	*Same as "Cabbage, Cauliflower, Celery, Lettuce."*

[1] For best results, apply as drench. Water in well. Rinse leaf blades. [2] Apply as a band or sidedress application. [3] Apply as thorough cover spray.

Greenhouse and Nursery Specialized Applications

	Drench Rate		Irrigation Injection Rate	
Parts per million (ppm) actual Fe	**Sprint 330** 10% DTPA Chelated Iron	**Sprint 138** 6% EDDHA Chelated Iron (5.2% ortho-ortho)	**Concentrate Stock Solution**	**Injector Pump Setting**
15	2.0 oz. / 100 gal. (56.70 g. / 375 L)	3.3 oz. / 100 gal. (93.56g. / 375 L)	1 gal.	1:100
20	2.7 oz. / 100 gal. (76.55 g. / 375 L)	4.5 oz. / 100 gal. (127.58 g. / 375 L)	1 gal.	1:100
30	4.0 oz. / 100 gal. (113.40 g. / 375 L)	6.7 oz. / 100 gal. (189.95 g. / 375 L)	1 gal.	1:100
40	5.4 oz. / 100 gal. (153.09 g. / 375 L)	9.0 oz. / 100 gal. (255.15 g. / 375 L)	1 gal.	1:100
60	8.0 oz. / 100 gal. (226.80 g. / 375 L)	13.4 oz. / 100 gal. (379.89 g. / 375 L)	1 gal.	1:100
80	10.8 oz. / 100 gal. (306.18 g. / 375 L)	18.0 oz. / 100 gal. (510.30 g. / 375 L)	1 gal.	1:100
100	13.5 oz. / 100 gal. (382.73 g. / 375 L)	22.5 oz. / 100 gal. (637.88 g. / 375 L)	1 gal.	1:100

For mild chlorosis: Drench plants with Sprint 330 or Sprint 138 beginning at 5 oz./100 gal. (141.75 g/375 L).

For severe chlorosis: Drench plants with Sprint 330 or Sprint 138 at 5-8 oz./100 gal. (141.75-226.80 g/375 L). Repeat 14 days later, 5-8 oz./100 gal. (141.75-226.80 g/375 L).

Conversion: 3 tsp. = 1 Tbs.; 1 oz. = 3 Tbs.

Always read and follow label directions.