

**BEST AVAILABLE COPY**

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

Subject: Title I Amendment  
Copper Sulfate Insecticide  
EPA Registration Number 1170-5  
Copper Sulfate Algaecide Herbicide  
EPA Registration Number 1276-9  
Your Submission Dated March 30, 1990

The file has been referred to the submitter. Marking, filing and release with restriction under the Freedom of Information Act, Public and Private Acts, as amended, is acceptable provided you make the following changes:

1. For 1278-5, on page 4 delete the word "most" from the sentence "Triumale Brand Copper Sulfate Pentahydrate is most effective in keeping sewer lines free of roots." Because it is misleading.
2. For 1278-5, on page 3 change "pesticide wastes are hazardous" to read "pesticide wastes are acutely hazardous," and on page 6, change 1.1 gallon summer oil emulsion to 1.2 gallon summer emulsion under Walnuts (Walnut Blight).
3. For 1278-8, on page 6, please change 10.8# per acre foot to 10.64# per acre foot under "If treated water is to be used as a source of potable water...". This will be consistent with the chart found on the same page.

A stamped copy is enclosed of both labels for your record. Please submit three (3) copies of your final printed labeling for each product incorporating this amendment.

Sincerely yours,

| CONCURRENCES |         |  |  |  |  |                                |  |  |  |
|--------------|---------|--|--|--|--|--------------------------------|--|--|--|
| SYMBOL       | H7505C  |  |  |  |  | Joanne L. Miller               |  |  |  |
| SURNAME      | Robbins |  |  |  |  | Acting Product Manager (23     |  |  |  |
| DATE         | 5/21/90 |  |  |  |  | Pung 12104 TETTER 136 Branch   |  |  |  |
|              |         |  |  |  |  | Registration Division (H7505C) |  |  |  |

(Circle Containing the following)

Phelps Dodge Refining Corporation  
El Paso, Texas

Triangle Brand Copper Sulfate

(Copper Sulfate)

ALGICIDE-HERBICIDE

NOT FOR MEDICINAL USE

Active ingredient: Copper sulfate pentahydrate\* ... 99.0%  
Inert ingredients:..... 1.0%  
\* Metallic Copper Equivalent ... 25.2%

KEEP OUT OF REACH OF CHILDREN  
HARMFUL IF TAKEN INTERNALLY

DANGER / PELIGRO

PRECAUCION AL USUARIO: Si usted no lee ingles, no  
use producto hasta que la etiqueta haya sido  
explicado ampliamente.

SEE BACK PANEL FOR ADDITIONAL PRECAUTIONARY AND PRACTICAL  
TREATMENT STATEMENTS.

Information for Right-to-Know States:

Copper Sulfate pentahydrate:Sulfuric acid, copper(2+) salt(1:1) /  
CAS Reg No. 7758-98-7; Water / CAS Reg No.7732-18-5

EPA REGISTRATION NO. 1278-8 EPA ESTABLISHMENT NO. 1278-TX-1

Net Weight 50 Lbs.- 22.68 Kg.

MANUFACTURED BY  
PHELPS DODGE REFINING CORPORATION  
EL PASO, TEXAS, 79998

Made in the United States of America.

ACCEPTED  
with COMMENTS  
in EPA Letter Dated:

MAY 22 1990

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.

1278-8

3049

**DANGER****PELIGRO**

**PRECAUCION AL USUARIO:** Si usted no lee ingles, no use este producto hasta que la etiqueta haya sido explicada ampliamente.

**PRECAUTIONARY STATEMENTS****HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**DANGER:** Causes severe eye and skin irritation. Harmful if swallowed, inhaled, or absorbed through the skin. Avoid breathing mist or dust and contact with skin, eyes, or clothing. Causes substantial but temporary eye injury. May cause skin sensitization reactions in certain individuals. Protective clothing, including goggles, should be worn. Wash hands, arms, and face thoroughly with soap and warm water after handling. Remove contaminated clothing and wash before reuse.

**STATEMENT OF PRACTICAL TREATMENT**

**IF SWALLOWED:** Drink promptly a large quantity of milk, egg white, gelatin solution, or if these are not available, large quantities of water. Avoid alcohol. Do not give anything by mouth to an unconscious person.

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock respiratory depression and convulsions may be needed.

**IF SPLASHED IN EYES:** Immediately flush eyes with plenty of water for at least 15 minutes, and get medical attention.

**IF SPILLED ON SKIN:** Remove contaminated clothes and shoes, immediately wash skin with soap and plenty of water, and get medical attention.

**IF INHALED:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth; and get medical attention.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish and aquatic organisms. Do not apply directly to water except as directed under the specific instructions section. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites. Direct application of copper sulfate to water may cause a significant reduction in populations of aquatic invertebrates, plants and fish. Do not treat more than one-half of lake or pond at one time to avoid depletion of oxygen levels due to decaying vegetation. Allow one to two weeks between treatments for oxygen levels to recover.

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Trout and other species of fish may be killed at application rates recommended on this label, especially in soft or acid waters. However, fish toxicity generally decreases when the hardness of water increases. Do not contaminate water by cleaning of equipment or disposal of wastes. Consult your State Fish and Game Agency before applying this product to public waters. Permits may be required before treating such water.

#### STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal

**STORAGE:** Store unused product in original container only in a cool, dry area out of reach of children and animals. If container or bag is damaged, place the container or bag in a plastic bag. Shovel any spills into plastic bags and seal with tape.

**PESTICIDE WASTE DISPOSAL:** Pesticide wastes are hazardous. Improper disposal or excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. Open dumping is prohibited.

**CONTAINER DISPOSAL:** Do not reuse empty container. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Place the pesticide into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If burned, stay out of smoke.

#### GENERAL INSTRUCTIONS

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

#### FEED ADDITIVE

**PHELPS DODGE REFINING CORPORATION TRIANGLE BRAND COPPER SULFATE PENTAHYDRATE** is a valuable dietary supplement in mixed feeds for cattle, hogs, chickens and other agricultural animals. Consult your State Agricultural Experiment Station or State Extension Service for guidance in preparing dosages and formulas.

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### FERTILIZER ADDITIVE

PHELPS DODGE REFINING CORPORATION TRIANGLE BRAND COPPER SULFATE PENTAHYDRATE is a valuable copper supplement in mixed fertilizers and soil conditioners. Consult your State Agricultural Experiment Station or State Extension Service for guidance in preparing dosages and formulas.

### DIRECTIONS FOR USE AS A PESTICIDE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

### TADPOLE SHRIMP (TRIOPS LONGICAUDATUS) IN RICE FIELDS

Tadpole Shrimp in Rice Fields may be effectively controlled by the prompt and proper use of COPPER SULFATE. After the Rice Field has been flooded to a depth of 6" to 8", the COPPER SULFATE should be uniformly applied at a rate of 10 to 15 pounds per acre at the FIRST SIGN OF INFESTATION. Following these directions carefully should keep the concentration of COPPER SULFATE less than 10 ppm. The "DIAMOND" size crystals are especially graded for maximum solubility.

### SEWER TREATMENT FOR ROOT AND FUNGUS CONTROL

(SEE OUR BOOKLET #12 FOR DETAILED INSTRUCTIONS)

PHELPS DODGE REFINING CORPORATION TRIANGLE BRAND COPPER SULFATE PENTAHYDRATE is most effective in keeping sewer lines free of roots.

- A. FOR PARTIAL STOPPAGE: Add 1/2 pound of PHELPS DODGE REFINING TRIANGLE BRAND COPPER SULFATE PENTAHYDRATE to sewer or drain and flush toward blockage with 5 gallons of water. Repeat at 6 month intervals to prevent growth of new roots.
- B. FOR COMPLETE STOPPAGE: Physically remove the root blockage and repeat as above.
- C. FOR HOUSEHOLD SEWERS: Use 2 - 6 lbs. COPPER SULFATE SMALL CRYSTALS twice yearly in spring and early fall. Apply in toilet bowl near sewer line. Flush each 1/2 lb. portion at a time. Or, remove the clean-out plug and pour entire quantity directly into sewer line and flush with water. NOTE: DO NOT APPLY IN SINK OR TUB DRAINS.

**D. FOR COMMERCIAL, INSTITUTIONAL AND MUNICIPAL USE:**

**SEWERS:** Use 2 lbs. of COPPER SULFATE SMALL CRYSTALS each 6 to 12 months, applied to each junction or terminal manhole.

**STORM DRAINS:** Use 2 lbs. of COPPER SULFATE SMALL CRYSTALS per drain per year. Apply during period of light flow. In dry weather induce a flow with hose. If storm drains become almost plugged, repeat treatment 3 or 4 times at two week intervals.

**SEWER PUMPS AND FORCE MAINS:** Place 2 lbs. of COPPER SULFATE SMALL CRYSTALS in a cloth bag at the storage wall inlet. Repeat as needed.

**CONTROLLING WEEDS, ALGAE, AND MICROSCOPIC ORGANISMS****TO CONTROL ALGAE IN IMPOUNDED WATERS, LAKES, PONDS, AND RESERVOIRS**

(SEE OUR BOOKLETS #10 AND #11 FOR DETAILED INSTRUCTIONS)

**WARNING CONCERN FISH**

\*\*\*\*\*

**NOTE:** The treatment of algae with COPPER SULFATE can result in oxygen loss in the water from decomposition of dead algae. This can cause the fish to suffocate. Therefore, to minimize this hazard, treat 1/3 to 1/2 of the water area in a single operation. Wait 7 to 14 days between treatments. Begin treatments along the shore and proceed outwards in bands to allow fish to move into untreated water.

**APPLICATION BY DRAGGING BURLAP BAGS WITH COPPER SULFATE UNDER WATER**

\*\*\*\*\*

Large or Small sized COPPER SULFATE are placed in burlap bags and dragged through the water by means of a boat. Begin treatment along the shoreline and proceed outward until 1/3 to 1/2 of the total area has been treated. The path of the boat should insure a distribution that is even. In large lakes the boat should move in parallel lines about 60 feet apart. Continue dragging until all of the weighed COPPER SULFATE is dissolved.

**APPLICATION BY SPRAYING COPPER SULFATE SOLUTION ON WATER SURFACE:**

\*\*\*\*\*

A solution can be made with COPPER SULFATE POWDER OR FINE CRYSTALS which dissolves easily in water. This solution can then be sprayed on the pond or lake surface from a boat. When using this method the wind direction is important as well as the operation of the boat. DO NOT ENDANGER PEOPLE OR ANIMALS IN THE BOAT WITH THE COPPER SULFATE SPRAY.

**APPLICATION BY SPRAYING DRY COPPER SULFATE CRYSTAL FROM AIRPLANES:**

\*\*\*\*\*

Professional personnel licensed by the State Agricultural

Extension Service are allowed to apply COPPER SULFATE CRYSTAL in some states.

\*\*\*\*\*  
If treated water is to be used as a source of potable water, the metallic copper residual must not exceed 1 ppm copper. This equals 10.3# per acre foot of water or 4 ppm of this product.  
\*\*\*\*\*

#### HOW TO FIND THE POUNDS OF COPPER SULFATE TO ADD TO WATER

To find Acre-Feet of water in a body of water, measure the body of water in feet. Calculate the surface area in square feet, divide by 43,560(sq.ft./Acre) times the average depth in feet.

1 Acre-Foot of Water = Water measuring 208.7 feet long by 208.7 wide by 1 foot deep.  
1 Acre-Foot of Water = 43,560. cubic feet of water.  
1 Cubic Foot of Water = 62.4 pounds  
1 Acre-Foot of Water = (43,560.) (62.4) = 2,720,000. Pounds

\*\*\*\*\*  
\* COPPER SULFATE PENTAHYDRATE IN WATER \*  
\* POUNDS PER ACRE = PARTS PER MILLION = parts per million \*  
\* FOOT OF WATER IN WATER copper in water \*  
\*\*\*\*\*  
0.67#/Acre-Foot = 1/4 ppm = 0.0625 ppm \*  
\* 1.3 #/Acre-Foot = 1/2 ppm = 0.125 ppm \*  
\* 2.6 #/Acre-Foot = 1 ppm = 0.25 ppm \*  
\* 5.32#/Acre-Foot = 2 ppm = 0.50 ppm \*  
\*\*\*\*\*

#### TREATMENT OF SOME ALGAE WITH COPPER SULFATE PENTAHYDRATE

( Dosage is in ppm of copper sulfate pentahydrate )

A higher concentration is required if the water is hard. Consult with the State Fish and Game Agency before applying product in municipal waters.

| +-----+-----+-----+-----+            |                 |                 |               |
|--------------------------------------|-----------------|-----------------|---------------|
| 0.25 - 0.50 ppm                      | 0.50 - 1.00 ppm | 1.00 - 1.50 ppm | 1.50 - 2 ppm  |
| +-----+-----+-----+-----+            |                 |                 |               |
| CYANOPHYCEAE ORGANISM ( BLUE GREEN ) |                 |                 |               |
| *****                                |                 |                 |               |
| Anabaena                             | Cyndrospermum   | Nostoc          | Calothrix     |
| Anacystis                            | Oscillatoris    | Phormidium      | Symploca      |
| Aphanizomenon                        | Plectonema      |                 |               |
| Gloeotrichia                         |                 |                 |               |
| Gomphosphaeria                       |                 |                 |               |
| Polycystis                           |                 |                 |               |
| Rivularia                            |                 |                 |               |
| +-----+-----+-----+-----+            |                 |                 |               |
| CHLOROPHYCEAE ORGANISM ( GREEN )     |                 |                 |               |
| *****                                |                 |                 |               |
| Closterium                           | Botryococcus    | Chlorella       | Ankistrodemus |

|                                 |                |               |             |
|---------------------------------|----------------|---------------|-------------|
| Hydrodictyon                    | Cladophora     | Crucigenia    | Chara       |
| Spirogyra                       | Coelastrum     | Desmidium     | Nitella     |
| Ulothrix                        | Draparnaldia   | Golenkinia    | Scenedesmus |
|                                 | Enteromorpha   | Oocystis      |             |
|                                 | Gloeocystis    | Palmella      |             |
|                                 | Microspora     | Pithophora    |             |
|                                 | Tribonema      | Staurostrum   |             |
|                                 | Zygnema        | Tetraedron    |             |
| +-----+-----+-----+-----+       |                |               |             |
| DIATOMACEAE ORGANISM (DIATOMS)  |                |               |             |
| *****                           |                |               |             |
| Asterionella                    | Gomphonema     | Achnanthes    |             |
| Fragilaria                      | Nitzschia      | Cymbella      |             |
| Melorias                        | Stephanodiscus | Neidium       |             |
| Navicula                        | Synedra        |               |             |
|                                 | Tabellaria     |               |             |
| +-----+-----+-----+-----+       |                |               |             |
| PROTOZOA ORGANISM (FLAGELLATES) |                |               |             |
| *****                           |                |               |             |
| Dinobryon                       | Ceratium       | Chlamydomonas | Eudorina    |
| Synura                          | Cryptomonas    | Hawmatococcus | Pandorina   |
| Uroglena                        | Euglena        | Peridinium    |             |
|                                 | Glenodinium    |               |             |
|                                 | Mallomonas     |               |             |
| +-----+-----+-----+-----+       |                |               |             |

#### TO CONTROL ALGAE AND WEEDS IN FLOWING WATER

To control Potamogeton Pondweeds, leafy and sago, in irrigation conveyance systems, use the continuous application method, selecting proper equipment to supply copper sulfate crystals at 0.25 to 0.5 pounds per hour for each cubic foot per sec. of flow for 12 hours of each 24. For best control, begin copper sulfate additions when water is first turned into system to be treated and continue throughout the irrigation season. Copper sulfate becomes less effective for mature plants. Copper sulfate becomes less effective as the bicarbonate alkalinity increases and is substantially reduced above 150 ppm as CaCO<sub>3</sub>. Mechanical or other means may then be required to remove excess growth.

To Control Algae(such as filamentous green, pigmented flagellates, diatoms) in irrigation conveyance systems begin continuous addition when water is first turned in, using suitable equipment to uniformly deliver 0.1 to 0.2 pounds of copper sulfate per hour per cubic feet per sec. of flow for 12 of each 24 hours. (Note:- Triangle Copper Sulfate comes in several "free flowing" crystal sizes but should be selected to match requirements of your feeder.)

To Control Algae and Weeds in Irrigation System by "slug" method of addition. Add 1/2 to 2 pounds for each cubic foot per sec. flow, repeat every two weeks. A pile is required for every 5 to 30 miles of length depending on alkalinity of the water.

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NOTICE TO BUYER

Seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

|                     |  |         |  |
|---------------------|--|---------|--|
| +-----+             |  | +-----+ |  |
| D.O.T. Hazard Class |  |         |  |
| RQ-ORM-E NA 9188    |  | ORM-E   |  |
| RQ 10/4.54          |  |         |  |
| +-----+             |  | +-----+ |  |