

FRONTIER
SPECIALTY CHEMICALS
Pure and (not so) simple

Frontier Specialty Chemicals, Inc. **Technical Data Sheet**
P.O. Box 31
Logan, UT 84323-0031
Phone: 1-435-753-1901

Catalog Number: **41300**

www.frontiersci.com

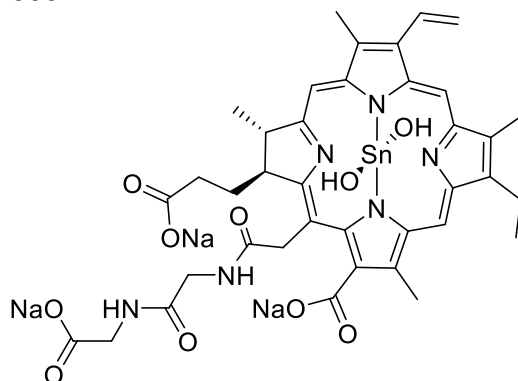
sales@frontiersci.com

For research use only

Not intended or approved for
diagnostic or therapeutic use.

**Product Name: Sn(IV) Chlorin e6 mono-glygly Amide Dihydroxide
Trisodium Salt**

Catalog Number: 41300



Sizes Available: 25 mg, 50 mg, 100 mg, and larger sizes available

Molecular weight: 861.48 g/mol

Molecular Formula: C₃₈H₄₂N₆Na₃O₁₀Sn

CAS Number: 1609250-37-4

Storage: Store at room temperature and protect from light.

Synonyms: Sonoflora1, Sonoflora1, Sonoflora-1, SF1, SF-1, SF 1

Field of Interest: Photodynamic therapy, nanocomposites, Quantum Oxygen Yield,
Catalysis, Photocatalysis

References:

- Dong, Ziliang, Liangzhu Feng, Wenwen Zhu, Xiaoqi Sun, Min Gao, He Zhao, Yu Chao, and Zhuang. Liu. CaCO₃ Nanoparticles as an Ultra-Sensitive Tumor-PH-Responsive Nanoplatform Enabling Real-Time Drug Release Monitoring and Cancer Combination Therapy. *Biomaterials* 110, no (2016): 60–70. <https://doi.org/10.1016/j.biomaterials.2016.09.025>.
- Ferrario, Angela, David Kessel, and Charles J. Gomer. Metabolic Properties and Photosensitizing Responsiveness of Mono-L-Aspartyl Chlorin E6 in a Mouse Tumor Model. *Cancer Research* 52, no (1992): 2890–93.
- Gomer, Charles J., and Angela. Ferrario. Tissue Distribution and Photosensitizing Properties of Mono-L-Aspartyl Chlorin E6 in a Mouse Tumor Model. *Cancer Research* 50, no (1990): 3985– 90.
- Gomer, Charles J., Stefan W. Ryter, Angela Ferrario, Natalie Rucker, Sam Wong, and Anita M. R. Fisher. Photodynamic Therapy-Mediated Oxidative Stress Can Induce Expression of Heat Shock Proteins. *Cancer Research* 56, no (1996): 2355–60.
- Hargus, Jodie A., Frank R. Fronczek, M. Graca H. Vicente, and Kevin M. Smith. Mono-(L)-Aspartylchlorin-E6. *Photochemistry and Photobiology* 83, no (2007): 1006–15. <https://doi.org/10.1111/j.1751-1097.2007.00092.x>.
- Kato, Harubumi, Kinya Furukawa, Masami Sato, Tetsuya Okunaka, Yohko Kusunoki, Masaaki Kawahara, Masahiro Fukuoka, et al. Phase II Clinical Study of Photodynamic Therapy Using Mono-L-Aspartyl Chlorin E6 and Diode Laser for Early Superficial Squamous Cell Carcinoma of the Lung. *Lung Cancer (Amsterdam, Netherlands)* 42, no. Copyright (C) 2021 U.S. National Library of Medicine. (2003): 103–11.
- McMahon, Kimberly S., T. Jeffery Wieman, Pamela H. Moore, and Victor H. Fingar. Effects of Photodynamic Therapy Using Mono-L-Aspartyl Chlorin E6 on Vessel Constriction, Vessel Leakage, and Tumor Response. *Cancer Research* 54, no (1994): 5374–79.
- Munowitz, Michael, Walter P. Aue, and Robert G. Griffin. Two-Dimensional Separation of Dipolar and Scaled Isotropic Chemical Shift Interactions in Magic Angle NMR Spectra. *Journal of Chemical Physics* 77, no (1982): 1686–89. <https://doi.org/10.1063/1.444064>.
- Omelyanenko, V., P. Kopeckova, C. Gentry, J.-G. Shiah, and J. Kopecek. HPMA Copolymer-Anticancer Drug-OV-TL16 Antibody Conjugates. 1. Influence of the Method of Synthesis on the Binding Affinity to OVCAR-3 Ovarian Carcinoma Cells in Vitro. *Journal of Drug Targeting* 3, no (1996): 357–73. <https://doi.org/10.3109/10611869608996827>.
- Omelyanenko, Vladimir, Christine Gentry, Pavla Kopeckova, and Jindrich. Kopecek. HPMA Copolymer-Anticancer Drug-OV-TL16 Antibody Conjugates. II. Processing in Epithelial Ovarian Carcinoma Cells in Vitro. *International Journal of Cancer* 75, no (1998): 600–608. [https://doi.org/10.1002/\(SICI\)1097-0215\(19980209\)75:4<600:AID-IJC18>3.0.CO;2-C](https://doi.org/10.1002/(SICI)1097-0215(19980209)75:4<600:AID-IJC18>3.0.CO;2-C).
- Roberts, W. Gregory, Kevin M. Smith, Jerry L. McCullough, and Michael W. Berns. Skin Photosensitivity and Photodestruction of Several Potential Photodynamic Sensitizers. *Photochemistry and Photobiology* 49, no (1989): 431–38. <https://doi.org/10.1111/j.17511097.1989.tb09191.x>.
- Spikes, John D., and Jerry C. Bommer. Photobleaching of Mono-L-Aspartyl Chlorin E6 (NPe6): A Candidate Sensitizer for the Photodynamic Therapy of Tumors. *Photochemistry and Photobiology* 58, no (1993): 346–50. <https://doi.org/10.1111/j.1751-1097.1993.tb09572.x>.
- Photosensitizing Properties of Mono-L-Aspartyl Chlorin E6 (NPe6): A Candidate Sensitizer for the Photodynamic Therapy of Tumors. *Journal of Photochemistry and Photobiology, B: Biology* 17,

no (1993): 135–43. [https://doi.org/10.1016/1011-1344\(93\)80006-U](https://doi.org/10.1016/1011-1344(93)80006-U). Taber, Scott W., Victor H. Fingar, Carolyn T. Coats, and T. Jeffery Wieman. Photodynamic Therapy Using Mono-L-Aspartyl Chlorin E6 (Npe6) for the Treatment of Cutaneous Disease: A Phase I Clinical Study. *Clinical Cancer Research* 4, no (1998): 2741–46.

Usuda, Jitsuo, Tetsuya Okunaka, Kinya Furukawa, Takaaki Tsuchida, Yukari Kuroiwa, Yuichiro Ohe, Nagahiro Saijo, Kazuto Nishio, Chimori Konaka, and Harubumi. Kato. Increased Cytotoxic Effects of Photodynamic Therapy in IL-6 Gene Transfected Cells via Enhanced Apoptosis. *International Journal of Cancer* 93, no (2001): 475–80. <https://doi.org/10.1002/ijc.1374>.

Al-Khaza'leh, Khaled A., Khalid Omar, M. S. Jaafar, and Guat-Siew. Chew. Effect of Acidification on the Absorption and Fluorescence Properties of Sn(IV) Chlorin E6 Dichloride Trisodium Salt. *Arabian Journal for Science and Engineering* 36, no (2011): 597–606. <https://doi.org/10.1007/s13369-011-0055-7>.

Cheng, J., J. Xu, J. Duanmu, H. Zhou, C. J. Booth, and Z. Hu. Effective Treatment of Human Lung Cancer by Targeting Tissue Factor with a Factor VII-Targeted Photodynamic Therapy. *Current Cancer Drug Targets* 11, no. Copyright (C) 2021 U.S. National Library of Medicine. (2011): 1069–81.

Duanmu, J., J. Cheng, J. Xu, C. J. Booth, and Z. Hu. Effective Treatment of Chemoresistant Breast Cancer in Vitro and in Vivo by a Factor VII-Targeted Photodynamic Therapy. *British Journal of Cancer* 104, no. Copyright (C) 2021 U.S. National Library of Medicine. (2011): 1401–9.

Friedberg, J. S., R. G. Tompkins, S. L. Rakestraw, S. W. Warren, A. J. Fischman, and M. L. Yarmush. Antibody-Targeted Photolysis. Bacteriocidal Effects of Sn (IV) Chlorin E6-Dextran-Monoclonal Antibody Conjugates. *Annals of the New York Academy of Sciences* 618, no. Copyright (C) 2021 U.S. National Library of Medicine. (1991): 383–93.

Gijssens, A., L. Missiaen, W. Merlevede, and Witte P. de. Epidermal Growth Factor-Mediated Targeting of Chlorin E6 Selectively Potentiates Its Photodynamic Activity. *Cancer Research* 60, no. Copyright (C) 2021 U.S. National Library of Medicine. (2000): 2197–2202.

Gijssens, Antoon, Ludwig Missiaen, Wilfried Merlevede, and Peter. De Witte. Epidermal Growth Factor-Mediated Targeting of Chlorin E6 Selectively Potentiates Its Photodynamic Activity. *Cancer Research* 60, no (2000): 2197–2202.

Hope, C. K., and M. Wilson. Induction of Lethal Photosensitization in Biofilms Using a Confocal Scanning Laser as the Excitation Source. *The Journal of Antimicrobial Chemotherapy* 57, no. Copyright (C) 2021 U.S. National Library of Medicine. (2006): 1227–30.

Hope, C. K., and M. Wilson Induction of Lethal Photosensitization in Biofilms Using a Confocal Scanning Laser as the Excitation Source. *Journal of Antimicrobial Chemotherapy* 57, no (2006): 1227–30. <https://doi.org/10.1093/jac/dkl096>.

Karabanovas, V., A. Skripka, J. Valanciunaite, R. Kubiliute, V. Poderys, and R. Rotomskis. Formation of Self-Assembled Quantum Dot-Chlorin E6 Complex: Influence of Nanoparticles Phospholipid Coating. *Journal of Nanoparticle Research* 16, no (2014): 1–8. <https://doi.org/10.1007/s11051-014-2508-x>.

Kurnygina, V. T., and T. V. Nikitina. Effect of Metal-Chlorophyll Derivative Complexes on Pancreatic Lipase Activity. *Biologicheskie Nauki (Moscow)*, no (1981): 31–34.

Rakestraw, S. L., W. E. Ford, R. G. Tompkins, M. A. Rodgers, W. P. Thorpe, and M. L. Yarmush. Antibody-Targeted Photolysis: In Vitro Immunological, Photophysical, and Cytotoxic Properties of Monoclonal Antibody-Dextran-Sn(IV) Chlorin E6 Immunoconjugates. *Biotechnology Progress* 8, no. Copyright (C) 2021 U.S. National Library of Medicine. (1992): 30–39.

Rakestraw, S. L., R. G. Tompkins, and M. L. Yarmush. Antibody-Targeted Photolysis: In Vitro Studies with Sn(IV) Chlorin E6 Covalently Bound to Monoclonal Antibodies Using a Modified Dextran Carrier. *Proceedings of the National Academy of Sciences of the United States of America* 87, no. Copyright (C) 2021 U.S. National Library of Medicine. (1990): 4217–21.

Shim, Gayong, Sangbin Lee, Young Bong Kim, Chan-Wha Kim, and Yu-Kyoung. Oh. Enhanced Tumor Localization and Retention of Chlorin E6 in Cationic Nanolipoplexes Potentiate the Tumor Ablation Effects of Photodynamic Therapy. *Nanotechnology* 22, no (2011): 365101/1-365101/8,S365101/1. <https://doi.org/10.1088/0957-4484/22/36/365101>.

Shives, Eric, Yong Xu, and Huabei Jiang. Fluorescence Lifetime Tomography of Turbid Media Based on an Oxygen-Sensitive Dye. *Optics Express* 10, no. Copyright (C) 2021 U.S. National Library of Medicine. (2002): 1557–62.

Shives, Eric, Yong Xu, and Huabei. Jiang. Fluorescence Lifetime Tomography of Turbid Media Based on an Oxygen-Sensitive Dye. *Optics Express* 10, no (2002): 1557–62. <https://doi.org/10.1364/OE.10.001557>.

Strong, L. H., F. Berthiaume, and M. L. Yarmush. Control of Fibroblast Populated Collagen Lattice Contraction by Antibody Targeted Photolysis of Fibroblasts. *Lasers in Surgery and Medicine* 21, no. Copyright (C) 2021 U.S. National Library of Medicine. (1997): 235–47.

Trachsel, Eveline, Manuela Kaspar, Frank Bootz, Michael Detmar, and Dario Neri. A Human MAb Specific to Oncofetal Fibronectin Selectively Targets Chronic Skin Inflammation in Vivo. *The Journal of Investigative Dermatology* 127, no. Copyright (C) 2021 U.S. National Library of Medicine. (2007): 881–86.

Trachsel, Eveline, Manuela Kaspar, Frank Bootz, Michael Detmar, and Dario. Neri. A Human MAb Specific to Oncofetal Fibronectin Selectively Targets Chronic Skin Inflammation In Vivo. *Journal of Investigative Dermatology* 127, no (2007): 881–86. <https://doi.org/10.1038/sj.jid.5700653>.

Uto, Yoshihiro, Dai Tamatani, Yusuke Mizuki, Yoshio Endo, Ikuo Nakanishi, Kei Ohkubo, Shunichi Fukuzumi, et al. Evaluation of the Sonosensitizing Activities of 5-Aminolevulinic Acid and Sn(IV) Chlorin E6 in Tumor-Bearing Chick Embryos. *Anticancer Research* 34, no (2014): 4583–87.

Uto, Yoshihiro, Dai Tamatani, Yusuke Mizuki, Hitoshi Hori, Yoshio Endo, Ikuo Nakanishi, Kei Ohkubo, et al. Evaluation of the Sonosensitizing Activities of 5-Aminolevulinic Acid and Sn(IV) Chlorin E6 in Tumor-Bearing Chick Embryos. *Anticancer Research* 34, no. Copyright (C) 2021 U.S. National Library of Medicine. (2014): 4583–87.

Wang, Xiaohuai, Jiangan Su, Qing Li, Guanglian Zhao, Yifan Luo, and Bo. Yu. Application of porphyrin-like compounds for preparing medicine for sonodynamic therapy., issued April 9, 2008.

Wolfort, S. F., S. R. Reiken, F. Berthiaume, R. G. Tompkins, and M. L. Yarmush. Control of Hypertrophic Scar Growth Using Antibody-Targeted Photolysis. *The Journal of Surgical Research* 62, no. Copyright (C) 2021 U.S. National Library of Medicine. (1996): 17–22.

Wolfort, Sean F., Steven R. Reiken, Francois Berthiaume, Ronald G. Tompkins, and Martin L. Yarmush. Control of Hypertrophic Scar Growth Using Antibody-Targeted Photolysis. *Journal of Surgical Research* 62, no (1996): 17–22. <https://doi.org/10.1006/jsre.1996.0166>.

Hazardous Properties and Cautions: The toxicological and pharmacological properties of this compound are not fully known. For further information see the SDS on request. **Sn(IV) Chlorin e6 mono-glygly Amide Dihydroxide Trisodium Salt** is manufactured, shipped according to standard practices, and intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the

supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

Warranty and Disclaimer: Frontier Specialty Chemicals, Inc. warrants the product conforms to the specifications stated herein. In the event of nonconformity, Frontier will replace products or refund purchase price, at its sole option, and Frontier shall not be responsible for any other loss or damage, whether known or foreseeable to Frontier. No other warranties apply, express or implied, including but not limited to warranty of fitness for any purpose or implied warranty of merchantability. Purchaser is solely responsible for all consequences of its use of the product and Frontier assumes no responsibility therefore, including success of purchaser's research and development, or health or safety of any uses of the product.