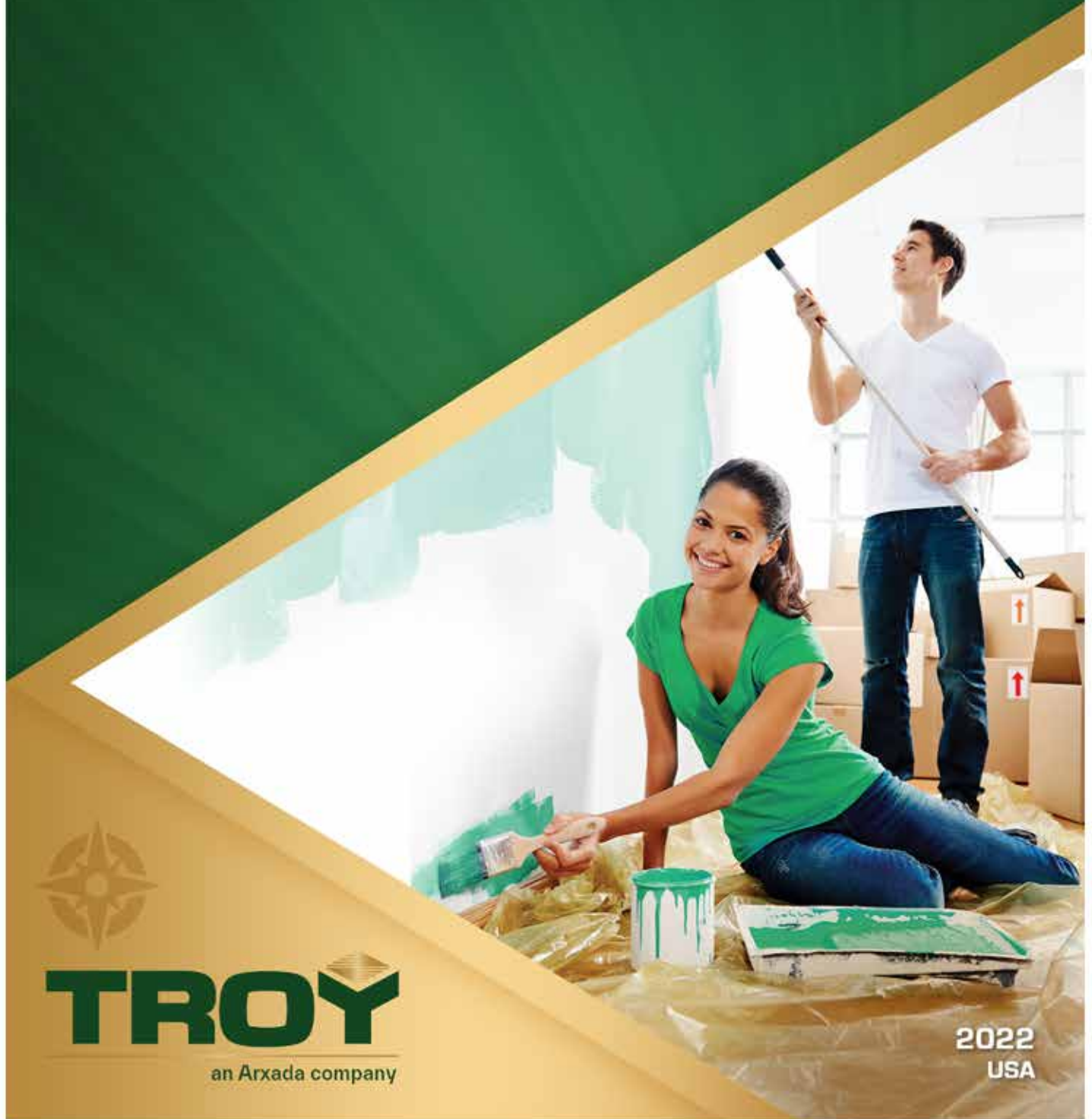


Advanced Preservatives

DRY-FILM & WET-STATE PRESERVATIVE TECHNOLOGY



TROY

an Arxada company

2022
USA

TROY

Dry-Film
Preservatives
Portfolio



Troy Preservatives Accommodate the Evolving Needs of Customers Worldwide

Troy manufactures a broad portfolio of advanced dry-film preservatives for the coatings and related industries.

Dry-Film Preservatives

Polyphase®, Troysan®, and Fungitrol® dry-film preservatives offer long-lasting, broad-spectrum protection against microorganisms that can potentially damage industrial and architectural coatings. Troy dry-film preservatives offer performance at low use levels for low cost-in-use. Many Troy preservatives also offer zero- or low-VOC composition, safe handling characteristics, and minimal environmental impact, making the products excellent choices for modern 'green' coatings.

The Importance of Broad-Spectrum Protection

Exterior coatings are subjected to a wide range of microbial threats, depending on both micro- and macroclimatic conditions as well as other factors. This poses a challenge for coatings manufacturers marketing their products nationwide or beyond. In order to impart maximum protection against the greatest range of potential microbial threats, coatings manufacturers achieve success by incorporating a broad-spectrum preservative that provides both antifungal and anti-algal performance. Troy offers a full range of broad-spectrum Polyphase® dry-film preservatives to accommodate these performance needs.

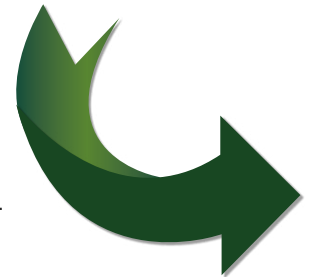


**Premier Portfolio
of Preservatives**
Now with More Active Chemistries!

With the acquisition of the Fungitrol® brand, Troy now has one of the broadest portfolios of dry-film preservatives available in the marketplace. Additionally, with more biocide technologies than ever before, Troy customers have greater formulating flexibility.

Dry-Film Preservative Selection Guide

This selection guide is designed to inform customers about the preservatives Troy currently offers, and to assist them in selecting products that will best serve their needs. Contact a Troy representative for further assistance, or visit www.troycorp.com for more information.



Product	Physical Form	Function			Chemistry							Applicable Systems	Typical Use Levels (% Weight)	pH Use Range (Typical)	Heat Stability (°C Maximum)		
		Fungicide	Bactericide	Algaecide	IPBC	BCM	Folpet	Chlorothalonil	OIT	Diuron	Terbutryn					BIT	ZPT
Polyphase® 763CR	Dispersion	✓		✓	•	•				•				Aqueous	0.2 - 3.0	5.0 - 10.0	70
Polyphase® 663	Dispersion	✓		✓	•	•				•				Aqueous	0.3 - 1.5	5.0 - 10.0	70
Polyphase® 678	Dispersion	✓			•	•								Aqueous	0.3 - 1.5	5.0 - 10.0	70
Polyphase® 7026*	Dispersion	✓			•	•								Aqueous	0.05 - 0.50	3.0 - 10.0	60
Polyphase® 8089	Dispersion	✓		✓	•	•				•				Aqueous	0.42 - 1.20	3.0 - 10.0	60
Polyphase® PW40	Dispersion	✓			•									Aqueous	0.1 - 2.5	5.0 - 9.5	50
Polyphase® S99	Dispersion	✓		✓	•	•					•			Aqueous	0.2 - 2.5	5.0 - 10.0	50
Troysan® 1050	Dispersion	Dry-Film Bactericide										•		Aqueous	0.5 - 1.5	6.0 - 14.0	100
Troysan® CP20	Powder	✓				•								Aqueous	0.05 - 1.5	5.0 - 10.0	100
Polyphase® 963	Dispersion	✓		✓	•	•				•				Solvent	0.5 - 1.5	—	70
Polyphase® 978	Dispersion	✓			•	•								Solvent	0.3 - 1.5	—	70
Polyphase® P100	Powder	✓			•									All	0.025 - 0.5	5.0 - 9.5	50
Fungitrol® 11	Powder	✓					•							Solvent	0.50 - 1.0	—	100
Fungitrol® 404	Dispersion	✓					•							Aqueous	0.50 - 2.24	5.0 - 10.0	100
Fungitrol® 720	Liquid	✓			•									All	0.80 - 2.40	5.0 - 10.0	50
Troysan® V450	Dispersion	✓							•					Aqueous	0.02 - 0.5	5.0 - 10.0	50
Troysan® ZPT38	Dispersion	✓	✓	✓								•		Aqueous	0.10 - 1.20	4.0 - 10.0	100
Polyphase® 641	Liquid	✓			•									Solvent	0.125 - 2.5	5.0 - 10.0	50
Polyphase® AF1	Liquid	✓			•									All	0.1 - 2.5	5.0 - 10.0	50
Polyphase® AF3	Liquid	✓			•									All	0.1 - 6.0	5.0 - 10.0	50
Polyphase® EC17	Liquid	✓			•									Aqueous	0.1 - 4.0	5.0 - 9.0	50
Polyphase® P20T	Liquid	✓			•									All	0.125 - 2.5	5.0 - 10.0	50
Polyphase® PW20CR	Dispersion	✓			•									Aqueous	0.24 - 1.0	3.0 - 11.0	40

* Pending registration

Preservative Selection Guide

FDA CFR Title 21 Approvals*	Suggested Applications											Product	
	Paints / Coatings	Wood Protection	Stains	Textiles	Sealants / Caulks	Adhesives	Joint Compounds	Stucco/EIFS/ Masonry	Polymer Emulsions	Pigment & Mineral Slurries	Wood Composites		Paper / Paperboard
	•	•	•	•	•			•					Polyphase® 763CR
	•	•	•	•	•			•					Polyphase® 663
	•	•	•	•	•	•	•	•				•	Polyphase® 678
	•				•	•							Polyphase® 7026
	•	•	•		•			•					Polyphase® 8089
	•	•	•	•	•	•	•	•		•		•	Polyphase® PW40
	•		•	•	•	•		•					Polyphase® S99
	•		•	•	•	•							Troysan® 1050
					•	•	•	•					Troysan® CP20
	•	•	•		•			•					Polyphase® 963
	•	•	•		•	•							Polyphase® 978
✓	•	•	•	•	•	•					•	•	Polyphase® P100
	•	•	•	•	•	•		•		•	•	•	Fungitrol® 11
	•	•			•	•		•			•	•	Fungitrol® 404
✓	•	•	•	•	•	•	•	•		•		•	Fungitrol® 720
	•	•		•				•			•		Troysan® V450
	•				•	•		•					Troysan® ZPT38
	•	•	•			•							Polyphase® 641
	•	•	•	•		•					•	•	Polyphase® AF1
	•	•	•	•		•					•	•	Polyphase® AF3
	•	•	•	•									Polyphase® EC17
	•	•	•	•	•	•						•	Polyphase® P20T
	•								•	•			Polyphase® PW20CR

TROY

Wet-State Preservatives Portfolio



Troy Preservatives Accommodate the Evolving Needs of Customers Worldwide

Troy manufactures a complete line of high performance wet-state (in-package) preservatives for the coatings and related industries. Troy preservatives are formulated for effectiveness, resiliency against microbial challenges, and compatibility in a wide range of applications.

Wet-State Preservatives

The Mergal® and Nuosept® portfolio includes the latest in wet-state preservation technology, offering a wide range of performance capabilities to preserve finished products in the wet stage. Advanced Mergal® and Nuosept® preservatives feature the leading active ingredients available, formulated to meet stringent performance, environmental, and safety standards. Troy wet-state preservatives are proven to provide long-lasting, value-driven performance in a wide range of applications.

A Broad Portfolio of Active Chemistries

Troy is your source for solutions, offering one of the widest ranges of active chemistries available. Troy's broad portfolio enables manufacturers to achieve optimum compatibility in their formulations, while maintaining regulatory compliance. Including the leading wet-state active chemistries, Troy's portfolio offers preservatives to suit most performance and cost objectives.

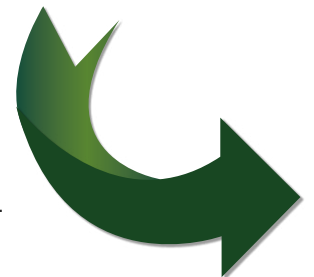


**Premier Portfolio
of Preservatives**
Now with More Active Chemistries!

With the acquisition of the Nuosept® brand, Troy now has one of the broadest portfolios of wet-state preservatives available in the marketplace. Additionally, with more biocide technologies than ever before, Troy customers have greater formulating flexibility.

Wet-State Preservative Selection Guide

This selection guide is designed to inform customers about the preservatives Troy currently offers, and to assist them in selecting products that will best serve their needs. Contact a Troy representative for further assistance, or visit www.troycorp.com for more information.



Product	Physical Form	Function		Chemistry							Applicable Systems	Typical Use Levels (% Weight)	pH Use Range (Typ)	Heat Stability (°C Max.)
		Bactericide	Fungicide	CMIT/MIT	MIT	BIT	Bronopol	DBNPA	Glutaraldehyde	Formaldehyde Adduct				
Mergal® CM1.5	Liquid	✓		•							Aqueous	0.05 - 0.4	3.0 - 9.0	60
Mergal® 758	Dispersion	✓		•		•					Aqueous	0.05 - 0.4	3.0 - 13	100
Mergal® BIT20W	Dispersion	✓				•					Aqueous	0.05 - 4.5	3.0 - 13	100
Mergal® K10N	Liquid	✓				•					Aqueous	0.05 - 0.5	3.0 - 13	100
Nuosept® MIT-10	Liquid	✓			•						Aqueous	0.02 - 0.144	3.0 - 10	60
Nuosept® BM21	Liquid	✓			•	•					Aqueous	0.05 - 0.25	2.0 - 10	80
Nuosept® BM22	Liquid	✓			•	•					Aqueous	0.05 - 0.25	3.0 - 10	60
Mergal® K12N	Liquid	✓		•			•				Aqueous	0.05 - 0.5	3.0 - 9.0	60
Mergal® GLT25	Liquid	✓							•		Aqueous	0.04 - 0.40	3.0 - 5.0	40
Mergal® GLT50	Liquid	✓							•		Aqueous	0.02 - 0.20	3.0 - 5.0	40
Mergal® K14	Liquid	✓		•							Aqueous	0.1 - 0.3	3.0 - 9.0	60
Mergal® 174II	Liquid	✓								•	Aqueous	0.1 - 0.3	7.0 - 13	60
Mergal® 174IIP	Solid	✓								•	Aqueous	0.1 - 0.4	7.0 - 14	60
Mergal® 186	Liquid	✓								•	Aqueous	0.1 - 0.3	7.0 - 13	60
Mergal® 395	Liquid	✓								•	Aqueous	0.05 - 0.4	3.0 - 10	70
Mergal® 530	Liquid	✓	✓					•			Aqueous	0.05 - 0.2	5.0 - 10	70
Mergal® BIT20	Liquid	✓				•					Aqueous	0.05 - 0.3	3.0 - 13	100
Nuosept® 44	Liquid	✓								•	Aqueous	0.1 - 0.5	3.0 - 12	60
Nuosept® 95	Liquid	✓								•	Aqueous	0.2 - 0.3	7.0 - 13	60
Nuosept® BM11	Liquid	✓			•	•					Aqueous	0.2 - 0.5	3.0 - 10	80

Zero VOC

Low VOC

Preservative Selection Guide

FDA CFR Title 21 Approvals*	Suggested Applications													Product
	Paints / Coatings	Wood Coatings	Stains	Textiles	Sealants / Caulks	Adhesives	Joint Compounds	Stucco / EIFS / Masonry	Inks	Polymer Emulsions	Pigment & Mineral Slurries	Oil & Natural Gas	Paper / Paperboard	
✓	•	•	•	•	•	•	•		•	•	•	•		Mergal® CM1.5
	•	•	•	•	•	•	•	•	•	•	•		•	Mergal® 758
	•	•	•	•	•	•	•	•	•	•	•	•	•	Mergal® BIT20W
✓										•	•			Mergal® K10N
	•				•	•	•	•		•				Nuosept® MIT-10
	•					•		•		•	•			Nuosept® BM21
	•					•		•		•	•			Nuosept® BM22
✓	•	•	•	•	•	•	•		•	•	•			Mergal® K12N
✓	•							•			•	•	•	Mergal® GLT 25
✓	•							•			•	•	•	Mergal® GLT 50
	•	•	•	•	•	•	•	•	•	•				Mergal® K14
						•	•	•			•	•		Mergal® 174II
						•	•	•						Mergal® 174IIP
	•	•	•	•	•	•	•		•	•	•			Mergal® 186
✓	•	•	•	•	•	•	•	•	•	•	•			Mergal® 395
✓	•	•	•	•	•	•	•	•	•	•	•	•	•	Mergal® 530
✓	•	•	•	•	•	•	•	•	•	•	•	•	•	Mergal® BIT20
	•	•	•	•	•	•	•	•	•	•	•			Nuosept® 44
	•	•	•	•	•	•	•	•	•	•	•	•	•	Nuosept® 95
	•					•		•		•	•			Nuosept® BM11

* For more information on FDA approvals, contact your Troy representative.

Sustainability

Troy is committed to sustainability, and endeavors to remain at the forefront of technology and innovation. Troy has created and instituted a product development process that goes beyond basic regulatory compliance and focuses on performance, environmental, and safety goals for the benefit of customers, various stakeholders, and end-users alike.



Troy Field Testing



Troy customers are located around the world — and the end-use products that they manufacture are subject to many different climates and types of microbial attack. Troy provides the coatings and related industries with innovative dry-film preservatives that have been tested extensively at outdoor exposure sites to ensure optimum protection against all likely microbial threats.

Troy maintains nine field testing sites worldwide to evaluate the performance of Troy products under a wide range of conditions. Climatically diverse locations present environments ranging from cold winters to year-round tropical heat and moisture. Troy field testing sites are located in regions that are also subject to a variety of microbial threats, including common mold, mildew, fungi, wood destroying fungi, yeast, and algae. Troy preservatives are evaluated over long periods of time, under a variety of climatic conditions and microbial hazards, and on a variety of coating substrates.

Troy invests significant resources in research and development and in rigorous, long-term product field testing to provide customers with preservatives that outperform and outlast conventional materials.

Worldwide Locations:

- Germany
- Denmark
- Oregon, USA
- New Jersey, USA
- Florida, USA
- China
- Thailand
- India
- Malaysia

Regulatory Support

In an era of increasing legislation by government agencies worldwide regarding the use of preservatives, Troy's experienced Regulatory Affairs department assists customers to achieve their objectives, while meeting all relevant regulatory requirements. With team members in the US, Europe, and Asia, Troy offers regulatory support globally with regional and national expertise to meet customer needs and enable them to successfully produce and market high-quality, compliant products.



Services

Technical Service

Technical Service representatives provide formulation assistance, product evaluation, microbiological, analytical, and field testing to assist customers in developing optimized formulation that meet performance and market objectives. Research & Development scientists develop innovative technology in anticipation of future market trends. Troy has numerous Technical Service Centers located strategically worldwide to assist customers, including a new, state-of-the-art Science & Technology Center at the company's Global Headquarters in New Jersey, USA.



TMMA

Created to enable customers to achieve contamination-free products and processes, and to reduce preservation cost, the Troy Microbial Management Advantage (TMMA) is a unique value-added service offered to customers worldwide. With the growing global regulatory trend toward 'green' and aqueous systems, TMMA is an increasingly important program. TMMA consists of plant hygiene audits, microbiological identification, efficacy testing, and preservative optimization analysis, orchestrated by Certified TMMA Practitioners, who have completed extensive training to identify root causes of contamination. Certified TMMA Practitioners then custom-develop preservative recommendations as well as optimized use levels to enable customers to achieve excellent performance while also meeting regulatory, sustainability, and cost-in-use goals.

Call your nearest Troy representative for immediate assistance or visit us online at www.troycorp.com. When visiting the website, become a registered user to obtain access to a wide range of resources.



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Services

As a Performance Partner, Troy offers a variety of services to support our product line of preservatives and additives to meet customer needs and provide market solutions.

Troy invites you to take advantage of the Troy services that can help you achieve your market objectives.

- Technical Service representatives can provide formulation assistance, product evaluation, and microbiological, analytical, and field testing to assist you in developing an optimum formulation that meets your product objective.
- Regulatory support is offered globally with regional and national expertise to meet your needs.
- R&D scientists work to anticipate future industry needs and develop innovative technology. Contact your Troy representative to discuss your unique requirement that may not be met by materials currently on the market. In fact, Troy may have just what you need already under development and if not, may be able to work with you to achieve your objective.
- A global supply network is in place to ensure product availability and fast delivery. Contact your local representative to ensure the product you need is available when you need it.

Contact your nearest Troy representative for immediate assistance or visit us online at www.troycorp.com. When visiting the website, become a registered user to obtain access to a wide range of resources.

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