

3M[™] PPE Solutions for Turnaround Maintenance in Oil & Gas and Chemical Processing Industries

Help enhance worker safety at every turn.

Turnaround Maintenance (TAM) projects are an essential part of your plant's operations and have the potential to increase the risk of unexpected events and hazardous exposures.

With all the specialized turnaround maintenance tasks across the different production units at a plant, how can you help protect an expanded workforce from a variety of hazards on the job? By choosing a trusted supplier of personal protective equipment backed by science and industry expertise.

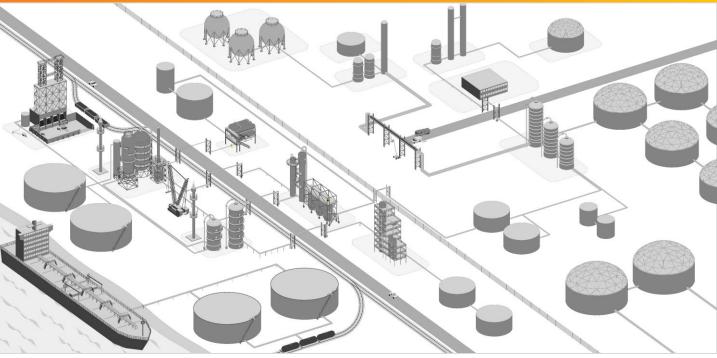
3M is dedicated to delivering comfortable well-designed personal protective equipment (PPE) that offers your workers effective personal protective solutions.

3M Personal Protective Equipment Solutions

- Respiratory protection
- Fall protection
- Hearing protection
- Protective communications
- Eye protection
- Face protection
- Head protection
- > Welding safety
- Protective coveralls

3M offers a broad portfolio of trusted PPE engineered for comfort and confidence.

Potential Hazards



Chemical exposures (includes airborne particulates, gas & vapors)

Workers may encounter a wide range of chemical hazards including solvents, acids, caustics, aromatics, and hydrocarbons.

Highly toxic chemicals may have especially low Occupational Exposure Limits (OEL) and pose significant hazards, including potential carcinogenic effects.



Noise

(includes inability to communicate)

Area background noise and high-noise operations (i.e. blasting and grinding) are often present during a plant TAM and may be amplified in confined spaces like metal tanks and vessels.

Communication can also be difficult when working in noisy environments, at heights, or in confined spaces.



UV IR VIS Light (i.e. welding arc)

Welding processes can generate hazardous ultraviolet (UV) radiation, infrared (IR) radiation, and (intense) visible light from the welding arc. Unprotected exposure to UV, IR and intense visible lights may lead to adverse health effects.



Confined Space (i.e. Entry/Fall Arrest/Retrieval & Rescue)

Workers involved with a confined space must be protected while working in and around the space. Confined spaces come in different sizes and shapes. These spaces must be evaluated prior to entry and a system must be designed to manage any situation.



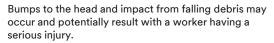
Working at Heights

A worker is considered "working at heights" if the person is working at elevations of 4 ft / 1.2 m or greater for general industry workplaces, 6 ft / 1.8 m or greater for construction industry, and 8 ft / 2.4 m in longshoring operations.* This includes working on a ladder, on scaffolding, on aerial lifts or mobile elevating work platforms, near or in pipe racks, on flat or sloped roofs, near an edge or an opening in a floor or wall.

*Fall Protection - Overview | Occupational Safety and Health Administration (osha.gov)

Flying, Falling Objects or Liquid Splash

Gases, vapors, mists, fine suspended dust, liquid splashes or sprays may cause irritation, inflammation, and other damage to eye. An eye can become inflamed, painful, and teary in reaction to a foreign object. Corneal scratches caused by metal particles can also result in a serious eye injury.





At 3M, we have service down to a science.

- Innovative technologies
- Industry knowledge & hazard awareness
- Regulatory & standards knowledge
- Training centers & online education courses
- > Authorized service & repair centers
- Broad channel/reseller network

Potential 3M Personal Protective Equipment Solutions *Turnaround Maintenance (TAM) in Oil & Gas and Chemical Processing Industries*

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Potential Hazards*	Chemical Exposures (includes airborne particulates, gases & vapors)	4	√	1	~	~	1	4
l Ha	Flying Objects		✓	1	√	√		
ntia	Falling Objects			1	√			
ote	UV IR VIS Light				√		4	
	Customer responsible for determining a	ppropriate PPE based on occu	pational workplace hazard and	risk assessment. See Product Se	election and Use on page 8.			
Services & Resources		Reusable	Respirators	Powered Air Purifying Respirators		Pressure Demand Supplied-Air Respirators (SAR)		Emergency
						& Self-Contained Breathing Apparatus (SCBA)		Escape Breathing Device
	3M™ Center for Respiratory Protection							
	Step-by-step tools to help ensure safety programs achieve their respiratory safety goals.	<u>3M™ Rugged</u> Comfort Quick	<mark>3M™ Full</mark>	3M [™] Versaflo [™]	M-4095G		NOT	
		Latch Half Facepiece	Facepiece Reusable Respirator 6000	Respiratory M-Series Helmet	Respiratory M-Series Helmet	<u>3M™ Scott™</u> <u>AV 3000 SureSeal</u>	<u>3M[™] Scott[™] Weld-O-</u> <u>Vista Facepiece</u> ⁷	
	3M™ Select & Service Life	Reusable Respirators	<u>Series</u> 3M Part #:	Assembly with Premium Visor and	Assembly with Flame-Resistant	Full Facepiece ¹	3M Part #:	<u>3M™ Scott™</u> <u>ELSA Emergency</u>
	Software	6500 Series	6700 (Small)	Flame-Resistant Shroud ²	<u>Shroud and</u> Speedglas™	3M Part # (polyester head	805438-01 (Small) 805438-02 (Large)	Escape Breathing
		3M Part #: 6501QL (Small)	6800 (Med) 6900 (Large)	3M Part #:	Welding Shield ^{2,3}	harness): 805774-81 (Small)	805428-03 (X Large)	Device 3M Part #:
	Contract on the second se	6502QL (Med) 6503QL (Large)		M-407	3M Part #: M-407SG (Nomax®	805774-82 (Med) 805774-03 (Large)		8007212 (5 min) 8007213 (10 min)
	1 manan di kanan ani			Other assemblies	shroud) M-409SG (Leather		L	
				available of the <u>3M™ M-Series</u>	shroud)			
				PAPR Helmet	Ŧ		^I Scott [™] Ska-Pak AT	
	he free 3M™ Select and Service Life Software can		<u>3M™ Scott™</u> <u>AV 3000 SureSeal</u>			(STA man	<u>plied-Air Respirator</u> Product Flyer for Part	
h	elp make selecting the ppropriate respirators	<u>3M™ Half</u> Facepiece	Full Facepiece ¹		<u>3M™ Speedglas™</u>	Nul	mber Configuration	
faster and easier. The software can also help you		Reusable Respirator	3M Part #: 805774-81 (Small)		9100XXi Welding		\geq	 Additional Configuration Options:
e	stimate the service life of M™ Respirator	6000 Series	805774-82 (Med) 805774-03 (Large)		Filter 3M Part #:	<u>3M™</u>	Scott™ Ska-Pak Plus	3M [™] Scott [™]
0	Cartridges, which aid in	3M Part #: 6100 (Small)	+		06-0000-30i		plied-Air Respirator Product Flyer for Part	Ska-Pak AT or Ska-Pak Plus
c	naintaining your cartridge hange schedule for gas	6200 (Med) 6300 (Large)		-	+		mber Configuration	Supplied-Air Respirator integrated with 3M™
а	nd vapor cartridges.		50	CLASS CALLER	CALIFORNIA (1994	2		DBI-SALA® ExoFit™ Series X100 Full-Body
			<u>3M™ Scott™</u> Bayonet Adapter				<u>A™ Scott™ Ska-Pak</u>	Harness <u>See Product Flyer for</u>
	3M™ Wear It Right App		3M Part #: AV-632	<u>3M[™] Versaflo[™]</u> IS PAPR TR-800 ^{4,5,6}	<u>3M™ Versaflo™</u> PAPR TR-600 ^{4,5,6}		oplied-Air Respirator Product Flyer for Part	<u>Full Body Harness Part</u> <u>Number</u>
3	Download App: Apple Store Google/Android Store	+		+		Number Configuration		
		3M™ Particulate Filter		<u>3M[™] Versaflo[™] High</u> <u>Efficiency Filters/</u>				
Make the task of qualitative fit testing less tedious with the tap of a button. Test both reusable and disposable respirator wearers and perform up to five fit tests at one time.		2000 Series 3M Part # (partial list):		TR-6530N TR-600 & TR-800		3 <u>M™ Scott™ Industrial</u> SCBA (ISCBA) See Product Flyer for Part Number Configuration		
		2091 (P100) 2097 (P100 Nuisance Level		3M Part # (partial list):				
		Organic Vapor)		<u>TR-6510N</u> (Organic Vapor/HE) <u>TR-6530N</u> (Organic Vapor/Acid Gas/HE)				
		3M [™] Advanced Particulate Filter 2200 Series 3M Part # (partial list):						
		<u>2291 (P100)</u>					<u>3M™ Scott™</u>	
		<u>2297 (P100 Nuisance Level</u> <u>Organic Vapor)</u>				SI SI	ACSi SCBA ee Product Flyer for	
	<u>3M™ Scott™ Service</u> <u>Technical Training</u>	a 3M™ 6000 Series Chemical					Part Number Configuration	
3M Scott offers service		Cartridges 3M Part # (partial list):		<u>3M™ Adflo™ PAPR Turbo Assembly</u> ^{4,6} 3M Part # :			<u></u>	
	ptions. The learning		1 (Organic Vapor)	35-5401-01		∑ 3M™ S	<u>cott™ Mobile Air Cart</u>	
	environment is hands-on with limited class sizes to	6003 (Organic Vapor/Acid Gas) 6006 (Multi-Gas/Vapor)					ders sold separately) 3M Part # :	
encourage dynamic discussion. Students receive a certificate upon completion.		3M [™] 6000 Series Combo Chemical Cartridge/P100 Filter 3M Part # (partial list): 60921 (Organic Vapor/P100) 60923 (Organic Vapor/Acid Gas/P100)		3M [™] Adflo [™] High Efficiency Particulate Filter January Adflo [™] Cartridge Organic Vapor/Acid Gas			826-01(4-outlet with	
						THE REAL PROPERTY IN	Hansen Fittings)	
							327-01(4-outlet with Outlet, Hansen Fittings)	
		60926 (Multi Gas/Vapor/P100) 60926 (Multi Gas/Vapor/P100)		3M Part # : 15-0299-99X02	3M Part # : 15-0499-99X02	<u>Other c</u>	configurations available	
	¹ Requires <u>3M[™] Scott[™] AV-632 Bayonet Adapter</u> when using with 3M [™] 6000 Series Cartridges or 3M [™] Particulate Filter 2000 Series. Adapter sold separately.							
	² See <u>Technical Bulletin</u> "Assigned Protection Factors (APF) for 3M [™] Hoods and Helmets" for configurations of 3M [™] PAPRs & helmets for US OSHA APF of 1000.							

- ⁵ The <u>3M[™] Versaflo[™] Spark Arrestor TR-663</u> is sold separately for the 3M[™] TR-600 and TR-800 PAPRs.
- ⁶ High efficiency (HE) particulate filter or gas/vapor chemical cartridges breathing hoses accessories and replacement parts sold separately.
- ⁷NIOSH-Approved with select 3M Scott SCBAs & SARs. Standard 2" x 4 1/4" passive welding filter not included.

³Auto-Darkening Filter (ADF) sold separately

⁴Metal spark arrestor/prefilter must be used during hot work molten metal or spark creating operations.

Potential 3M Personal Protective Equipment Solutions

Turnaround Maintenance (TAM) in Oil & Gas and Chemical Processing Industries



²Davit arm base, davit arm & mast, mechanical winch, self-retracting lifeline device, and mounting bracket purchased separately. ³ Mechanical winch self-retracting lifeline device purchased separately.

⁴ Order concrete or steel anchor plates or D-rings separately

Potential 3M Personal Protective Equipment Solutions

Turnaround Maintenance (TAM) in Oil & Gas and Chemical Processing Industries

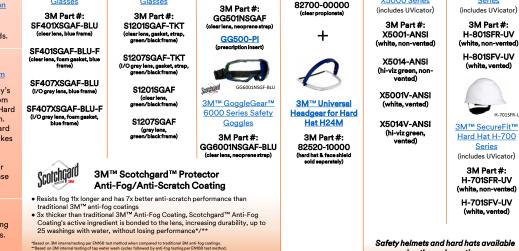


PPE Solutions for full offering of protective eyewear and faceshields.

□ <u>3M[™]Custom Hard Hats</u> Logo & Reflective Program

Advertise your company's logo or tagline on custom hard hats with the 3M Hard Hat Customize Program. Additionally, the 3M Hard Hat Customizer site makes it easy to add 3M™ Scotchlite™ Reflective Material striping to your hard hats to help increase worker visibility.

□ See <u>3M[™]</u> Welding Protection for full offering of welding PPE solutions.



in other color options.

G5-03 Pro Welding Helmet with Hard Hat 3M Part #:

<u>3M[™]Speedglas</u>™

10-0100-00SH

(ADF lens & task light cessory sold separately

10-0100-00HH (ADF lens & task light cessory sold separately)



6

3M Part #:

H-701SFV-UV (white, vented) 46-0000-30TW 46-0000-30VC

H-701SFR-UV

Series

A WARNING

These hearing protectors help reduce exposure to hazardous noise and other loud sounds. Misuse or failure to wear hearing protectors at all times that you are exposed to noise may result in hearing loss or injury. For correct use consult supervisor and User Instructions or call 3M PSD Technical Service in the USA at 1-800-665-2942.

A WARNING

U.S. EPA specifies the NRR as the measure of hearing protector noise reduction. However, 3M makes no warranties as to the suitability of the NRR for this purpose. 3M strongly recommends personal fit testing of hearing protectors. Research suggests that users may receive less noise reduction than indicated by the attenuation label value(s) on the packaging due to variation in fit fitting skill and motivation of the user. Refer to applicable regulations or guidance on how to adjust attenuation label values. It is recommended that the NRR be reduced by 50% to better estimate typical protection.

Eye Protection

A WARNING

These eye or face protection products help provide limited eye and face protection. Misuse or failure to follow warnings and instructions may result in serious potential injury including blindness or death. For proper use selection and applications against flying particles optical radiation and/or splash see supervisor read User Instructions and warning on the package or call 3M PSD Technical Service in the USA at 1-800-243-4630. In Canada call 1-800-267-4414. 3M PSD products are for occupational use only.

Head Protection

A WARNING

3M Head and Face Products provide limited protection only. Misuse or failure to follow warnings and User Instructions may result in serious personal injury or death. For proper use, see supervisor, User Instructions or call 3M Personal Safety Division Technical Assistance at 800-243-4630.

Fall Protection

A WARNING

Compliant fall protection and emergency rescue systems help prevent serious injuries associated with fall events. Users must read and understand the User Instructions provided with the product and must be properly trained by their employers in the safe use of these systems before using them per OSHA 1910.140 and 1926.503 or applicable local standards. Misuse or failure to follow warnings and instructions may result in serious personal injury or death. For proper use see supervisor User Instructions or call 800-328-6146 (Opt. 1).

Respiratory Protection

🛣 🔺 WARNING

These respirators help to protect against certain airborne contaminants. Before use the wearer must read and understand the User Instructions provided as part of the product packaging. A written respiratory protection program must be implemented meeting all the requirements of OSHA 1910.134 including training fit testing and medical evaluation. In Canada CSA standards Z94.4 requirements must be met and/or requirements of applicable jurisdiction as appropriate. Improper use may result in sickness or death. For correct use see supervisor and User Instructions or call 3M PSD Technical Service in USA at 1-800-243-4630 and in Canada at 1-800-267-4414.

Welding Safety

WARNING

This product is designed to help protect the wearer's eyes and face from harmful radiation including visible light ultra-violet radiation (UV) infra-red radiation (IR) sparks and spatter resulting from welding processes. These products must be used only by qualified persons who are properly trained in their use and maintenance. Misuse may result in permanent eye injury and vision loss. Always wear ANSI 287.1 compliant safety spectacles in addition to any welding helmet. For correct use see supervisor and User Instructions or call 3M PSD Technical Service in U.S.A. at 1-800-243-4630 and in Canada at 1-800-267-4414.

Coveralls

Final determination as to the suitability of these products for a particular situation is the employer's responsibility. This information is subject to revision at any time. Always read and follow all User Instructions supplied with your 3M[™] Protective Coveralls in order to ensure correct operation. If you have any questions, contact 3M Technical Service.

Product Selection and Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application including conducting a workplace hazard assessment and reviewing all applicable national and/or local regulations and standards. Failure to properly evaluate select and use a 3M product in accordance with all applicable instructions and with appropriate safety equipment or to meet all applicable safety regulations may result in injury sickness death and/or harm to property.

Warranty: Warranty conditions for 3M products are determined with the sales contract documents and with the mandatory and applicable clause excluding any other warranty or compensation.

For industrial/occupational use only. Not for consumer sale or use.



Personal Safety Division 3M Center, Building 235-2W-70 St. Paul MN 55144-1000

 Technical Assistance
 1-800-243-4630

 Customer Service
 1-800-328-1667

 Web
 <u>3M.com/workersafety</u>

3M, 3M Science. Applied to Life., E-A-R, E-A-Rsoft, UltraFit, NEX, Exofit, DBI-Sala, Protecta, Nano-Lok, Ultra-Lok, Rebel, Scott, PELTOR, Optime, Aura, Powerflo, Cool Flow, Versaflo, Speedglas, SecureFit, SecureClick, Scotchgard, Scotchlite, STRATA, LIFTech, Revolver, EZ-Link, Delta, Sealed-Blok, Saflok, Rollgliss, Dyneema, Cool Flow, Adflo, WS, Air-Pak and Uvicator are trademarks of 3M. Used under license by 3M subsidiaries and affiliates.

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