

FlowGuard Gold®

FBC™ System Compatible Program



An Orbia business.

CPVC piping systems have been chosen for more than 50 years. Ideally suited for use in new construction, re-piping and repair projects within domestic plumbing, and industrial and fire sprinkler piping, CPVC products are unsurpassed in their corrosion resistance and ease of installation.

In order for CPVC piping systems to achieve peak performance, they must be properly matched with complementary construction products like thread sealants, leak detectors and firestops, among others.

Lubrizol, the FlowGuard Gold® license holder and resin supplier, understands the complex dilemma and possible legal ramifications a mismatch can create for contractors and manufacturers alike. To ease the burden associated with researching and selecting accompanying construction products, Lubrizol developed the FBC™ System Compatible Program. This unique and invaluable resource tests and monitors ancillary products to ensure their chemical compatibility with Lubrizol's FlowGuard Gold® CPVC piping systems.

The primary goal of the FBC™ System Compatible Program is to enhance customer confidence by eliminating the guesswork associated with chemical compatibility. To streamline the selection process, all products in the program display an FBC™ System Compatible mark on their label. This mark quickly and accurately assures installers of a product's chemical compatibility. And once this mark has been applied, no changes can be made to the formulation of the product without advance written notice and retesting.

The following products meet the standards and are deemed to be FBC™ System Compatible.



System Compatible Product Listing

Cleaners, Desinfectants, Mold Inhibitors, Etc.	Manufacturer
FortiCel® New Construction	Protective Coatings Group
Anabec New Build 50 (clear, blue, white)	Anabec, Inc.
FortiCel® Pro Clean +	Protective Coatings Group
Anabec Advanced Cleaning Solution Plus	Anabec, Inc.
moldBLOCK™	MoldStoppers, LLC
Anabec Advanced Cleaning Solution Plus Blue	Anabec, Inc.
moldBLOCK™ Cleanser	MoldStoppers, LLC
AfterShock	ICP Construction
Recon Ultra Smoke Odor Sealer	ICP Construction
IAQ 6000	ICP Construction
Bioesque Mold Resistant Coating (White)	Bioesque Solutions
Bioesque Smoke & Odor Encapsulant (White)	Bioesque Solutions
Bioesque Mold Resistant Coating (Clear)	Bioesque Solutions
Bioesque Smoke & Odor Encapsulant (Clear)	Bioesque Solutions
Cutting Oil	Manufacturer
ThreadFit® CLEAR	ASC Engineered Solutions, LLC
Endura-Clear™	RIDGID
CL-Free PLUS Thread Oil	Walker Emulsions
Cutting Edge Cutting Oil	Utility Manufacturing Co., Inc.
Dark Thread CUTTING OIL	Lansdale Valve & Manufacturing
Cutting Edge Chlorine-Free Cutting Oil	Utility Manufacturing Co., Inc.
LVOIL-C Clear Cutting Oil	Utility Manufacturing Co., Inc.
Firestop Cast-In Devices	Manufacturer
SpecSeal Cast-in Firestop Device	Specified Technologies, Inc.
White ProSeal Plug	Proset Systems
HydroPreseal®	Holdrite
Hydro Flame®	Holdrite
Water Barrier Module	Hilti
Top Seal Plug	Hilti
CP 680-P	Hilti
CP 680-PX	Hilti
Hydroflame™ PRO Series Sleeving Systems	Holdrite
CFS CID MD P	Hilti
Metacaulk® Cast-In-Place Firestop Device	RectorSeal
Firestop Collars	Manufacturer
Metacaulk® Pipe Collar	RectorSeal
CP 643N	Hilti
Self Seal SSC	Nuco
Self Seal SSR	Nuco
HydroFlame™ Pipe Collar	Holdrite
CP 644	Hilti

FBC™ System Compatible Program

System Compatible Product Listing

Firestop Sealants	Manufacturer	Firestop Sealants	Manufacturer
FS-One Max	Hilti	HydroFlame™ 200 Firestop Sealant	Holdrite
CFS-S SIL SL	Hilti	SpecSeal Smoke 'N' Sound Spray	Specified Technologies, Inc.
CFS-S SIL GG	Hilti	SpecSeal Safing Spray	Specified Technologies, Inc.
White Lightning Flame Buster Intumescent Silicone Sealant	Sherwin Williams	SpecSeal® Smoke 'N' Sound Sealant (SNS105W)	Specified Technologies, Inc.
White Lightning Flame Buster Silicone Fire & Smoke Blocking Sealant	Sherwin Williams	SpecSeal® Smoke 'N' Sound Sealant (SNS120W)	Specified Technologies, Inc.
SpecSeal® Series AS200 Elastomeric Spray	Specified Technologies, Inc.	SpecSeal® Smoke 'N' Sound Sealant (SNS129W)	Specified Technologies, Inc.
TREMstop™ IA+	Tremco	INSS1440 Fire Barrier Caulk Firestop Sealant	International Fireproof Technology, Inc.
TREMstop™ Fyre-Sil SL	Tremco	FM012 Firestop Putty Firestop Sealant	International Fireproof Technology, Inc.
TREMstop™ Fyre-Sil Gun Grade	Tremco	MSL Marine Silicone Sealant	Specified Technologies, Inc.
WF300 Firestop Caulk	Specified Technologies, Inc.	HydroFlame™ 300SL Firestop Sealant	Holdrite
SSS Intumescent Sealant	Specified Technologies, Inc.	HydroFlame™ 300CG Firestop Sealant	Holdrite
SpecSeal® Series SIL300	Specified Technologies, Inc.	BOSS® 816+ Firestop Sealant	Soudal Accumetric
SpecSeal® LCI Intumescent Firestop Sealant	Specified Technologies, Inc.	CFS-TTS	Hilti
PENSIL® 300	Specified Technologies, Inc.	CFS-TTS MD	Hilti
MC 150+	RectorSeal	CS-S SA Light	Hilti
Metacaulk® 1000	RectorSeal	CS-TTS SA	Hilti
Metacaulk® 350i	RectorSeal	BlazeMaster® Caulk & Walk® PRO	Specified Technologies, Inc.
3000 WT Firestop	3M		
IC 15 WB+ Firestop	3M	Firestop Wraps	Manufacturer
Fire Barrier Water Tight Sealant 1003 SL	3M	Metacaulk® Wrap Strip	RectorSeal
Fire Barrier Water Tight Sealant 1000 NS	3M	CP 648-S / CP 648-E	Hilti
Metacaulk® 835+ CG / 835+ Self Leveling	RectorSeal	Self-Seal FireBand Intumescent Silicone Firestop	Nuco
RectorSeal® Smoke and Acoustic Caulk / Spray	RectorSeal	fischer FiWS Intumescent Wrap Strip	Fischerwerke GMBH & Co.
Self Seal GG-266	Nuco	HydroFlame™ WrapStrip	Holdrite
Self Seal GG-200	Nuco	INFS0812 Intumescent Strip Firestop Wrap	International Fireproof Technology, Inc.
Self Seal SL-100	Nuco	INFS0812 Intumescent Strip Firestop Wraps	International Carbide Technology Co., Ltd.
Metacaulk® 1200 Spray, 1200 SL, 1200 Caulk	RectorSeal	BOSS® 817 Firestop Wrap	Soudal Accumetric
PyroPro HPE Sealant	FSi Limited	Metacaulk® Composite Sheet	RectorSeal
FirePro® High Expansion Intumescent Sealant	Rockwool Ltd	CFS-COS Firestop Composite Sheet	Hilti
fischer fiGM Intumescent Graphite Mastic	Fischerwerke GMBH & Co.	FEWS Eco Wrap Strip	Fischerwerke GMBH & Co.
QuelStop HPE Sealant	Quelfire Ltd.	Metacaulk Joint Strip	RectorSeal
FiAM US Intumescent Acoustic Mastic	Fischerwerke GMBH & Co.	FF107 OverSleeve / Firestop Wrap	Tenmat, Ltd.
Fischer UFS Universal Firestopping Sealant	Fischerwerke GMBH & Co.		
fischer RFS Rapid Fire Seal	Fischerwerke GMBH & Co.	Freeze Protection	Manufacturer
HydroFlame™ 50 Firestop Sealant	Holdrite	Superguard G48	Superior Oil Company
HydroFlame™ 100 Firestop Sealant	Holdrite	Superguard G38	Superior Oil Company
		FireFighter® GL48	Noble Company
		Frost Proof GL-48	J.C. Whitlam Manufacturing Company
		LFP Antifreeze	Tyco Fire Products, LP
		freezemaster™ Antifreeze	Lubrizol Corporation
		LFP Antifreeze+	Tyco Fire Products, LP
		FireFighter® Eliminator 1330™	Noble Company

FBC™ System Compatible Program

System Compatible Product Listing

Gasket and Gasket Lubricant	Manufacturer	System Accessories	Manufacturer
Phoenix™ 27-XL High Performance Water Dispersible Pipe Joint Lubricant	JTM Products	Sioux Chief CPVC Transition Fittings	Sioux Chief
PROSELECT™ Pipe Joint Lubricant	Ferguson	FlexHead® Fire Sprinkler Connections	ASC Engineered Solutions, LLC
Lubri-Joint® Water Dispersible Gasket Lubricant	LA-CO	Thread Sealants	Manufacturer
Quick Slip Plus	J.C. Whitlam Manufacturing Company	Blue+	RectorSeal
Stress Saver® XP Gasket	Garlock	Tuf-Glide®	Argco
Lubefit® Gasket Lubricant	ASC Engineered Solutions, LLC	T Plus 2	RectorSeal
Slip-N-Seal Pipe Joint Lubricant	Utility Manufacturing Co., Inc.	LH056	PermaBond
Tuf-Lube	Argco	Great White®	Oatey
LANS LUBE Pipe Joint Lubricant	Lansdale Valve & Manufacturing	ProSeal Plus	Lyncar
Gruvlock Standard Lubricant	ASC Engineered Solutions, LLC	Sluc-Tite® Paste With PTFE	LA-CO
Leak Detector	Manufacturer	Leak-Tite® Blue	LA-CO
megabubble® Leak Detector	Hercules Chemical Company	TFW™	Jet-Lube
Seismic Expansion Devices	Manufacturer	Power Seal Plus	J.C. Whitlam Manufacturing Company
Fireloop® Expansion Joint for Fire Sprinkler Systems	Metraflex	White Seal Plus	IPS Corporation
Seismic Wire Rope/Cable™ Bracing	Loos & Co.	Blue Seal	IPS Corporation
nVent CADDY Cable Spools (CSBxxCBL)	ERICO International Corporation	Pro Dope™ Thread Sealant	Hercules Chemical Company
nVent CADDY URC Attachment Kits	ERICO International Corporation	PipeFit®	ASC Engineered Solutions, LLC
Rigid Seismic Bracing	ERICO International Corporation	BLUE MONSTER™ Stay-Soft Sealant	Clean-Fit
nVent CADDY Lateral Telescoping Brace Assembly (CSBTx)	ERICO International Corporation	Big White Thread Sealant	Black Swan Manufacturing, Co
Seismic Wire Rope / Cable™ Bracing	ERICO International Corporation	Blue Monster Zer, Zero VOC	Clean-Fit
		TFE-TITE PTFE Thread Sealant	Utility Manufacturing Co., Inc.
		Durst PTFE Pipe Joint Compound	Durst Industries
		Lansdale LIP Seal	Lansdale Valve & Manufacturing
		Lansdale LANS SEAL	Lansdale Valve & Manufacturing

Products are continuously being added to the FBC™ System Compatible Program. Always refer to <https://www.lubrizol.com/CPVC/FBC-System-Compatible-Program> for the most current list of compatible products

FBC™ System Compatible Program

Incompatible Products

All ancillary construction products coming into direct contact with FlowGuard® pipe & fittings systems must be chemically compatible. This ensures proper performance and functionality.

If an ancillary product is to come into direct contact with a FlowGuard® pipe & fittings system and is not included in the FBC™ System Compatible Program, Lubrizol recommends that chemical compatibility be confirmed with that product's manufacturer prior to use.

The following products have been deemed to be incompatible with FlowGuard® pipe & fittings systems.

Do not use the following products

Caulks	Manufacturer
Gyproc Sealant	British Gypsum
Alex Plus Acrylic Latex Caulk Plus Silicone	DAP Products, Inc.
Kwik Seal Tube & Tile Adhesive Caulk	DAP Products, Inc.
DAP Concrete & Masonry Sealant	DAP Products, Inc.
DensDefy™ Liquid Flashing	GP Gypsum, LLC
ZIP System™ Liquid Flash	HUBER Engineered Woods
AM Acrylic Acoustic Intumescent Mastic	Intumescent Systems, Ltd.
Permathane SM7108 Polyurethane Sealant	ITW Polymers Sealants
Grabber Acoustical Sealant GSCS	John Wagner Associates
Knauf Sealant	Knauf
MaxFlash Flashing Membrane	Master Builders-Admixtures, US, LLC.
Nemesis Fire Rated Hybrid Sealant 290ML	No Nonsense Limited
Polyseamseal Tub & Tile Adhesive Caulk	OSI Sealants (Dartworth Company) / (Ohio Sealants)
Polyseamseal All Purpose Adhesive Caulk	OSI Sealants (Dartworth Company) / (Ohio Sealants)
Pro Series PC-158 Caulk	OSI Sealants (Dartworth Company) / (Ohio Sealants)
AC-20 Acrylic Latex Caulk & Silicone	Pecora
Protecta FR Acrylic caulk	Polyseam Ltd
Protecta FR Graphite caulk	Polyseam Ltd
Red Devil 3000 Blacktop & Roof Repair Sealant	Red Devil, Inc.
Sikaflex® Self-Leveling Sealant	Sika Corporation
Dymonic® 100	Tremco®
Sheetrock Brand Acoustical Sealant	United States Gypsum
3006 All Purpose Adhesive Caulk	White Lightning

Cleaners, Desinfectants, Mold Inhibitors, Etc.	Manufacturer
Anabec Advanced Cleaning Solution	Anabec Systems
Anasphere Plus™	Anabec Systems
Betco ph7Q Dual	Betco Corporation, Ltd
Zoonocide	Coating Systems Laboratories, Inc.
MDRO/MRSA One Step Disinfectant	Daycon Products Company, Inc.
Spectra System 4 404 1:28 Neutral Disinfectant	Daycon Products Company, Inc.
ShockWave	Fiberlock Technologies
IAQ Advanced Peroxide Cleaner No. 8314	Fiberlock Technologies
Fiberlock IAQ 2000	Fiberlock Technologies
FX Lumberguard	Fire Retardant Coatings of Texas
Clean 'n Etch	Great Lakes Laboratories
Foster First Defense 40-80 Disinfectant	H. B. Fuller Construction Products
ODORx-9-D-9	Legend Brands
Microban QCG	Microban Systems
Mediclean Germicidal Cleaner Concentrate	ProRestore Products
Dri-Eaz Milgo Plus	ProRestore Products
Microban Milgo Plus	ProRestore Products
ProRestore QGC	ProRestore Products
MediClean QGC	ProRestore Products
Red Devil Painter's Caulk	Red Devil, Inc.
Serum 1000	Serum Products, LLC
Odorgo Smoke Odor Counteractant	ServiceMaster Clean
Sanimaster 6	ServiceMaster Clean
Waxie HP Disinfectant Cleaner	Waxie Sanitary Supply
Non-Acid Bath Disinfectant	Wepak National
Structure-Guard Mold and Mildew Resistant Coating	X-M Industries
Duct Sealant	Manufacturer
CCWI-181 Duct Sealant	Carlisle HVAC Products
Dye Penetrants	Manufacturer
Sherwin DP-40	Sherwin
Fire Stopping Systems	Manufacturer
Fire Barrier 2003 Silicone	3M
Fire Barrier Sealant FD 150+	3M
Fire Barrier CP25WB+	3M
Fire Barrier Tuck-in Wrap Strips	3M
3M FireDam Spray 200	3M
Bostik Intucrylic Sealant White	Bostik Limited
FR Intumescent & Acoustic Acrylic Sealant	BritChem Limited
Everbuild Fire Mate Sealant C3	Everbuild
Intumastic HP	Firetherm
Safire Intumescent Mastic	Fireus Ltd.
Fischer FFB-ES Elastoseal	Fischer
Flame Stop V	Flame Stop

FBC™ System Compatible Program

Do not use the following products

Fire Stopping Systems	Manufacturer
CP506 Smoke and Acoustic Sealant	Hilti
CP606 Flexible Firestop Sealant	Hilti
Hilti CP 672 Speed Spray	Hilti
CFS-SP WB (DINP)	Hilti
No Nonsense Intumescent Acrylic Sealant	No Nonsense Limited
4100NS	Passive Fire Protection Partners
Grafitex	Promat
Proseal Plug, Black	Proset
Proseal Plug, Red	Proset
Rockwool FirePro Acoustic Intumescent Sealant	Rockwool
Speedline Intumescent Fire Protection & Acoustic Sealant	Speedline
Firecode® Smoke-Sound Sealant	USG
Leak Detector (See also Other Compatibility Concerns)	Manufacturer
Gasoila Leak Tech	Federal Process Co.
Masters Leak Detector	G. F. Thompson Co., Ltd.
Radnor® Leak Test Regulator Temperature	Radnor Welding Products
RectorSeek™ Low-Temp	RectorSeal®
Multitec Leak Detecting Spray	Unipak A/S
Pipe Clamp	Manufacturer
Naylon vinyl-coated wire pipe hangers	Naylon Products
Pipe Tape	Manufacturer
Pipe Wrap Tape	Christy's
All Weather PVC Pipe Wrap	Pasco
Pipe wrap tape (black)	Pro Pak, Inc.
No. 413 Pipe Wrap Tape	Wonder

Other compatibility concerns

Thread Sealants	Manufacturer
Super Dope	Allied Rubber & Gasket Company (ARGCO)
TFE Paste	Anti-Seize Technology
Super Lock Hi-Strength, StudLock Grade 2271	Devcon
Masters™ Pro-Dope™ with Teflon®	G.F. Thompson Co., Ltd.
GS-600	General Sealant
Brush-on/Blue Block	Hercules
Powerseal #932	Hernon Mfg. Inc.
Seal Uryte Thread & Gasket Sealer	J.C. Whitlam Mfg. Co.
Jet Lube V-2	Jet Lube, Inc.
Tighter-than-Tite	Jomar
Threadlocker242	Loctite
577	Loctite
Permabond LH-050	National Starch & Chemical, Permabond Division
Permabond LH-054	National Starch & Chemical, Permabond Division
Permabond A1044	Permabond Engineering Adhesives Ltd
Permatex 14H	Permatex Company, Inc.
High Performance Teflon® Thread Sealing Compound	Rule
Saf-T-Lok TPS Anaerobic Adhesive/Sealant, Industrial Grade TPS	Saf-T-Lok Chemical
Teflon® Pipe Dope	SOS Products
SWAK	Swagelok Company
Waterproofing	Manufacturer
R-Guard® FastFlash® Roller Grade	PROSOCO, Inc.
R-Guard® Cat 5® Rain Screen	PROSOCO, Inc.
TREMproof 250GC single component polyurethane	Tremco

Always CHECK the FBC™ System Compatible Program for the most up-to-date compatibility listings.
<https://www.lubrizol.com/CPVC/FBC-System-Compatible-Program/Incompatible-Products>

FBC™ System Compatible Program

Acetone in Primers, Cleaners and Solvent Cements

- ① Primers, cleaners, and solvent cements containing appreciable amounts of acetone may cause rapid environmental stress cracking of CPVC metal insert parts during installation at freezing temperatures. Contact your primer/cleaner/solvent cement manufacturer for more information or recommendation of alternatives.

Antifreeze: Glycerin from Biodiesel

- ① Crude glycerin from biodiesel manufacturing is not recommended for use as an antifreeze or heat transfer fluid in CPVC piping systems. Crude glycerin from biodiesel manufacturing may be contaminated with the biodiesel, its intermediary chemicals, and/or waste products from the biodiesel manufacturing process. NFPA 13D calls for the use of USP (United States Pharmacopoeia) or CP (Chemically Pure) grades when glycerin is used as an antifreeze in fire sprinkler systems. For a listing of glycerin products that have been determined to be compatible with Lubrizol brand CPVC, refer to FBC™ System Compatible Program.

Cleaning CPVC Pipe

- ① While common ordinary soaps are not detrimental to CPVC, most modern dishwashing liquids contain synthetic detergents, some of which may cause environmental stress cracking of fittings. A mild ionic detergent solution to remove incompatible oils or chemicals is recommended. A rinse with clean water to completely clean the system is advisable as a final flushing. Contact your dishwater detergent manufacturer for more information or a recommendation of alternatives. For a listing of ancillary products that are compatible to Lubrizol CPVC, refer to FBC™ System Compatible Program.
- ① Household bleach solutions may be used for cleaning and disinfecting piping systems. The bleach used should be plain, without added thickeners, detergents, scents, etc.

Drains

- ① CPVC should not be used to connect a dishwasher drain to the sanitary drain due to incompatibility with food oils and surfactants in the dishwasher wastewater. This incompatibility could lead to premature failure in the CPVC.

Dry Wall Compound

- ① Joint Compound/Taping Compound/Mud/Finishing Compound used with Gypsum board is generally not incompatible with CPVC.

Fireproofing

- ① Cementitious or gypsum-based fireproofing material is not incompatible with CPVC.

Flexible Wiring & Cable

- ① Direct contact with flexible wire and cable that utilize insulation containing plasticizers is not recommended. Section 334.30 of the National Electric Code (2002 Edition) requires wire and cable to be secured by staples, cableties, straps, or hangers. Air ducts, pipes and ceiling grid are not acceptable supports for wire and cable. Also see section titled “Rubber & Flexible Materials containing plasticizers.”

Fragrances – Perfumes

- ① Scented products such as cologne, perfume, or essential oils (peppermint oil, orange oil, spearmint oil, etc.) should not be put into a CPVC piping system for the purpose of being able to detect leaks by odor. Most fragrance chemicals and essential oils are strong solvents and/or environmental stress cracking agents for CPVC.

Fungicides & Mold Inhibitors

- ① When performing repairs to leaks in existing systems, care should be taken to isolate CPVC pipe from direct contact with heavy concentrations of fungicide products which may be applied during cleanup of water damage. Vinyl piping materials such as PVC or CPVC may be damaged by fungicides when fungicides are sprayed on surrounding drywall and wood framing to prevent the growth of mold and mildew in the affected area. Common sense precautions will prevent problems with repairs to existing systems. When repairs are made to an existing system, and the possibility exists that fungicides will be applied to treat damp drywall and wood framing surrounding the repair site, exposed piping should be sleeved with a compatible plastic sleeving or pipe insulation material to prevent direct contact of the fungicide with the plumbing system.

Gap Filling

- ① General-Purpose Gap Filling: For general-purpose filling of small gaps around CPVC pipes in wall or floor penetrations (not fire-rated constructions), either RTV silicone sealant or polyurethane “foam-in-a-can” may be used.

Other types of general purpose sealants may or may not be compatible. Always check with the product’s manufacturer for recommendations. See also Lubrizol’s list of caulks and sealants known to be incompatible.

FBC™ System Compatible Program

Gap Filling

- ⦿ If spaces larger than small gaps in wall or floor penetrations are anticipated to be filled with polyurethane foam around CPVC pipes and fittings, see also Lubrizol's published information concerning foamed-in-place polyurethane insulation. For sealing gaps in fire-rated constructions, a compatible firestopping product must be used.

Grease & Cooking Oils

- ⦿ When CPVC pipe is installed in kitchen areas the pipe must be protected from contact with grease or cooking oils. Consideration must be given to not only protecting the pipe from direct contact with grease or oil but also contact that may occur from airborne grease or oil.

Heat Trace

- ⦿ It is acceptable to heat trace FlowGuard Gold®, pipe and fittings provided the temperature of the heat tracing material does not exceed 180°F (82°C). Steam heat tracing should not be used. Chemical compatibility of the heat tracing material with CPVC should be confirmed with the product manufacturer. The heat tracing material should comply with all applicable codes and be installed per manufacturer's instructions.

Hangers and Straps

- ⦿ Plastic hangers and straps made of 100% polypropylene, polyethylene or nylon may be used.
- ⦿ Most metal hangers and straps designed for metal pipe are likely suitable for use. Hangers and straps should not have rough or sharp edges that come in contact with the pipe. Hangers and straps with a flexible coating or pads may contain incompatible plasticizers and are not preferred. Also see section titled "Rubber & Flexible Materials Containing Plasticizers".
- ⦿ See pipe manufacturer's installation instructions for proper use of hangers and straps.

Insulation

- ⦿ Tubing insulation for use with CPVC should be fiberglass, foamed polyolefin (polyethylene), foamed polyisocyanurate or phenolic. Foamed rubber tubing insulation may contain incompatible plasticizers and is not preferred. Foamed polyolefin, foamed polyisocyanurate and phenolic insulations should not have any oil lubrication applied to the interior surface.

Insulation

- ⦿ Paper Faced Batt, Unfaced Batt and Fill insulation made of Fiberglass, Glass Mineral Wool, Mineral Fiber, Stone Wool, Silica Aerogel and Cellulose may come into contact with CPVC.
- ⦿ Fiberglass Duct insulation with aluminum, paper, metalized polyester, polypropylene and polyethylene facing may come into contact with CPVC.

Leak Detectors

- ⦿ If it is necessary to use leak detectors on CPVC systems, only leak detectors that are included in the FBC™ System Compatible Program should be used. While common ordinary soaps are not detrimental to CPVC, most modern dishwashing liquids contain synthetic detergents, some of which may cause environmental stress cracking of fittings. For a listing of ancillary products that are compatible to Lubrizol CPVC, refer to FBC™ System Compatible Program.
- ⦿ Scented products such as cologne, perfume, or essential oils (peppermint oil, orange oil, spearmint oil, etc.) should not be put into a CPVC piping system for the purpose of being able to detect leaks by odor. Most fragrance chemicals and essential oils are strong solvents and/or environmental stress cracking agents for CPVC.

Metal Piping connected to or Installed Alongside CPVC Piping

- ⦿ CPVC may be damaged by torches and/or chemicals used to install metal piping. When metal piping is installed in proximity to CPVC piping systems, care should be taken to protect the CPVC from burning with torches or contact with molten solder and solder flux, as well as incompatible thread sealants, leak detectors, lubricants, or other chemical products which may be used on metal piping.
- ⦿ Transitions from steel pipe to CPVC pipe can be made through a variety of methods such as threaded connections, flanges, and grooved adapters. Occasionally the steel pipe may contain residual oils that were used to aid in the cutting process. Some of the oils used for this purpose, especially those marketed as "environmentally friendly" or "vegetable based" may be incompatible with CPVC. These cutting oils should be removed from the steel pipe prior to connecting to CPVC pipe. If a cutting oil is used, consult with the manufacturer of the cutting oil for a specific recommendation as to compatibility with CPVC. Those cutting oils which are listed in the FBC™ System Compatible program have been tested and confirmed to be compatible with FlowGuard Gold®.

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Metal Piping connected to or Installed Alongside CPVC Piping

- ⦿ Dye penetrants used to test the quality of welds in metal piping may contain plasticizers or other chemicals incompatible with CPVC. Dye penetrants left on the inside surface of welded metal pipes may later wash into CPVC piping connected to it. This situation could create environmental stress cracking in CPVC wherever collections of the penetrant chemical might lodge. These penetrants should be removed from the steel pipe prior to connecting to CPVC pipe or the manufacturer of dye penetrant should be consulted with regarding recommending proper penetrant for use with steel I CPVC piping systems.

Paint

- ⦿ If paint must be used on CPVC, water-based latex paint is the recommended type of paint to use on pipe and fittings manufactured from Lubrizol CPVC. Two-part epoxy paint should not be used. Other types of paint have not been known to be detrimental to CPVC provided that it is applied in a light coating that dries quickly. Paint should not be allowed to puddle on or around CPVC pipe or fittings. Antimicrobial additives in paint do not change this guidance.

Polyurethane (Spray-On) Foams

- ⦿ In understanding spray polyurethane foams there are two general areas of concern for CPVC pipe and fittings: (1) chemical compatibility and (2) potential damage to pipes and fittings due to high exothermic temperatures during installation. These spray polyurethane foams have different cell structures, different flame retardants, reach different curing temperatures and require different installation thicknesses to obtain the required r-value. All of these factors must be considered when using spray foams.
- ⦿ In 2009, Lubrizol assisted the Spray Polyurethane Foam Alliance (SPFA) to determine if chemical compatibility issues exist with FlowGuard Gold® CPVC pipe and fittings. SPFA findings, although not comprehensive, conclude that those spray polyurethane foams tested did not pose a chemical compatibility problem. In addition, Lubrizol is unaware of a CPVC failure that was the result of chemical incompatibility with spray polyurethane foams. For more information on the SPFA testing, please contact them at (800) 523-6154 or visit their web site at www.sprayfoam.org. With respect to chemical compatibility, one must always check with the spray foam manufacturer to have them provide assurance that the formulation that they are manufacturing is not incompatible with CPVC.

Polyurethane (Spray-On) Foams

- ⦿ In a separate, unrelated study also in 2009, Lubrizol conducted testing with a manufacturer of spray polyurethane foam to better understand the effects of high exothermic temperatures on FlowGuard Gold® and BlazeMaster® CPVC pipe and fittings. These findings demonstrated that temperatures can exceed the softening point of dry CPVC pipe and fittings.
- ⦿ This study found that, for the products tested, the spray pass thickness of the manufacturer's nominal two pound density spray polyurethane closed cell foam should not exceed a maximum of two inches per single pass. Lubrizol also found in this study that repeated two inch passes (layers) separated by 10 minute intervals provided sufficient time for the spray polyurethane foam to cool. For the manufacturer's nominal half pound density spray polyurethane open cell foam, Lubrizol found that spray pass thickness should not exceed a maximum of six inches per single pass. Heat generated and trapped inside foam layers applied too thickly may cause ballooning of pipe or excess flexural stresses on pipe and fittings due to thermal expansion.

Because polyurethane spray foams' resulting exothermic temperatures and chemical compatibility characteristics can vary to some extent, Lubrizol recommends that you consult with the manufacturer of the polyurethane spray foam to be installed.

- ⦿ For more information on the compatibility study conducted by SPFA or on the effects of the curing exotherm on CPVC, visit the Spray Polyurethane Foam Alliance website at <http://www.sprayfoam.org/component/content/article/39-technical/5153-spf-and-cpvc-pipes-and-fittings>.
- ⦿ California State Fire Marshal Information Bulletin 14-004
Non-Metallic Piping Systems, Fire Sprinklers and Spray Polyurethane Foam Applications.

Residual Oils with HVAC Applications

- ⦿ Some heat exchangers or condenser coils may contain residual oils from the manufacturing process which can cause cracking of CPVC. Caution should be exercised when installing CPVC in combination hot water/air heating units or as condensate drain lines for air conditioning systems. Confirm the compatibility of CPVC with the residual oils prior to installation. The interior of heat exchangers or the exterior of condenser coils may be thoroughly flushed with mild ionic detergent solution to remove incompatible oils prior to piping installation. A rinse with clean water to completely clean the system is advisable as a final flushing.

FBC™ System Compatible Program

Rubber & Flexible Materials Containing Plasticizers

- ⦿ CPVC is not compatible with some rubber and flexible plastic materials containing certain types of plasticizers. Incompatible plasticizers include, but are not limited to, phthalates, adipates, trimellitates, dibenzoates, etc. Compatibility should be confirmed before selecting rubber or flexible vinyl materials for direct contact with CPVC. Examples of materials which may contain incompatible plasticizers include, but are not limited to, caulks, rubbery hanger padding, vinyl dip coating on metal parts, rubber gaskets, electrical wire jacketing, electrical tape, flexible hoses or tubes, etc. Further, plasticizers may leach from rubber or flexible vinyl materials, such as hoses or tank linings, into the process fluid which contacts them. Plasticizer contamination in the process fluid may also cause environmental stress cracking of CPVC used elsewhere in the system. This can include both CPVC process piping, through which the contaminated fluid may flow, or CPVC ducting drawing fumes from contaminated fluid. Also see section titled “Flexible Wiring & Cable.”

Sleeving Material

- ⦿ In situations where sleeving is required, the pipe should be protected with a compatible sleeving material extending at least 12” above and below the soil. The top of the sleeving should be securely taped to the pipe with a compatible tape product. Backfill over underground piping prior to termiticide spraying. Also see section titled “Termiticides & Insecticide.”

Spray-On Coatings

- ⦿ Certain types of spray-on coatings which form a peelable film to protect fixtures during construction may be incompatible with CPVC. Care should be used to protect exposed piping from overspray when this type of protective coating is applied.

Teflon® Tape

- ⦿ Teflon® tape is recommended as a preferred thread sealant.

Termiticides & Insecticides

- ⦿ When performing installations underslab or where the presence of insecticides or termiticides are likely, care should be taken to isolate CPVC pipe from direct contact with large quantities of these chemicals. Vinyl piping materials such as PVC or CPVC may be damaged when termiticides or insecticides are injected into the annular space between the pipe wall and sleeving material trapping the termiticide against the pipe wall. Termiticide applications per label instructions in an open-air environment, such as slab pretreat applications, should not pose a problem. However, puddling of termiticides on or near CPVC pipe may cause failures. In areas where puddling is more likely, such as areas near tub boxes and retreat applications, extra care should be taken to avoid puddling of termiticides. Exercising caution and common sense should prevent installation problems. Before using an insecticide or termiticide, be sure to consult the manufacturer’s installation guide for proper application instructions. For a listing of insecticides or termiticides that are included in the FBC™ System Compatible Program, refer to FBC™ System Compatible Program.
- ⦿ Additional precautions need to be taken when retreat applications are required. Termiticide retreatment is usually required when the concrete slab has been broken to relocate a pipe. The following recommendations should be followed in retreat applications:
 - Remove all the plastic barrier material that was installed prior to the initial concrete pour from the area to be retreated. Do not reinstall the plastic barrier material.
 - After the pipe has been relocated, the soil should be pretreated before it is placed in hole around the pipe. Do not apply termiticide directly to the retreat area. Also see section titled “Sleeving Material.”

LEGAL DISCLAIMER

The FBC™ System Compatible Program is a resource made available to manufacturers of ancillary products intended to be used with CPVC to help determine whether a product is chemically compatible with Lubrizol's FlowGuard®, CPVC piping systems. Other manufacturers and/or brands of CPVC piping have not been tested as part of the FBC™ System Compatible Program. The FBC™ System Compatible program is, therefore, only applicable to the chemical compatibility of ancillary products with the Lubrizol brands of FlowGuard®, CPVC piping systems. This distinction is made because every brand of CPVC piping is made with unique compounds, some of which may contain resins with different molecular weights and varying chlorine content. These characteristics directly impact the performance of the resulting product. Similarly, various CPVC products contain different performance additives. This too affects the performance characteristics of the ancillary product. For these reasons, Lubrizol has no responsibility for any failures occurring as a result of using products in the FBC™ System Compatible Program with CPVC products other than FlowGuard®.

For the most up-to-date chemical compatibility listings, please visit:
www.lubrizol.com/CPVC/FBC-System-Compatible-Program