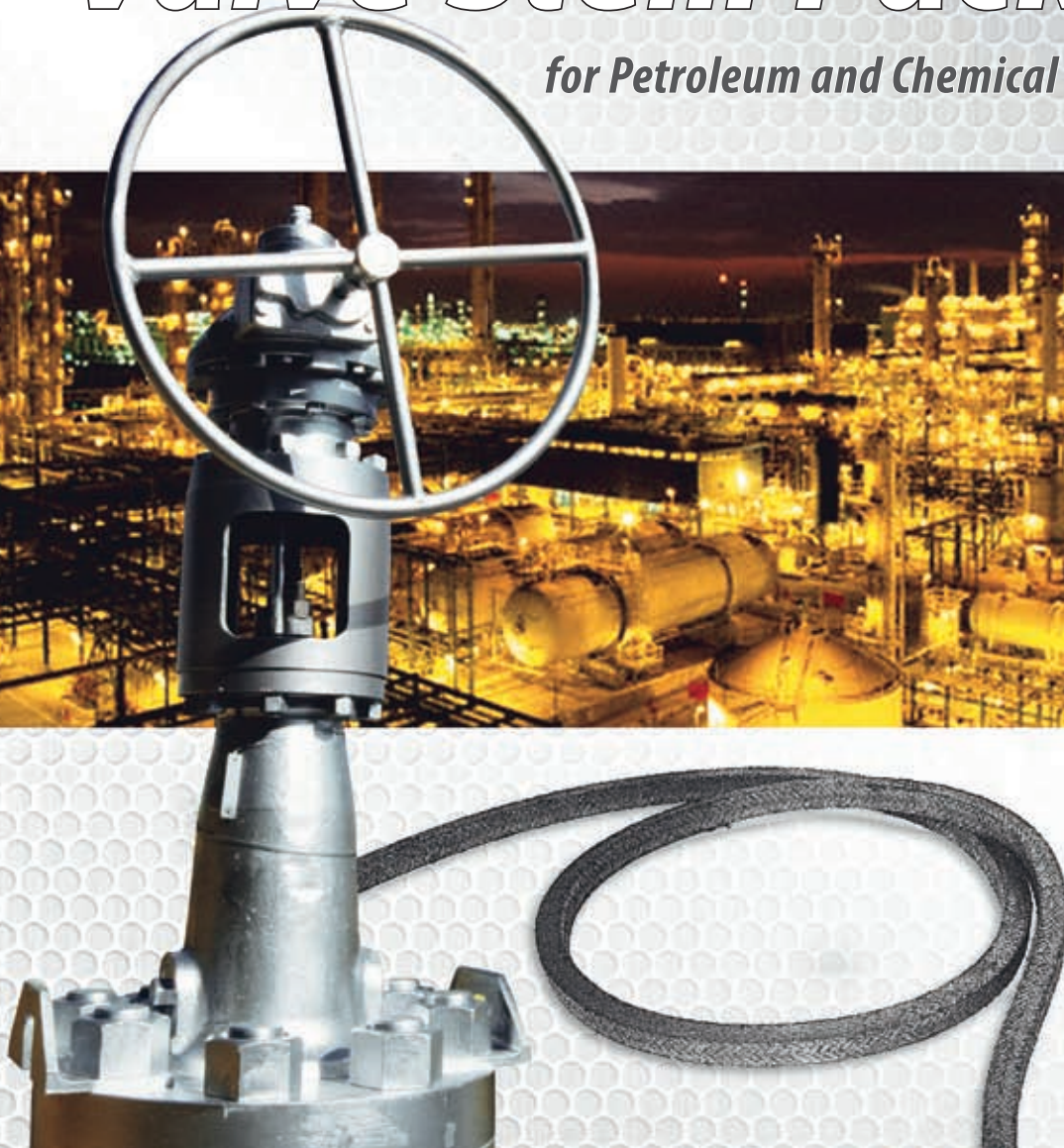




Outstanding *Valve Stem Packings*

for Petroleum and Chemical Process Industry



TEADIT® 010-ELE (Extremely Low Emissions)
Combo Set Valve Stem Packings for Extreme Emission Control

Teadit® Style Packings for sealing Valve Stems: 2235 - 2236 - 2222

COMBO SET

TEADIT® 010-ELE *EXTREMELY Low Emissions*

TEADIT® 010-ELE COMBO SET has an excellent sealability for applications where a rigid control of fugitive emissions is required due to hazardousness of fluids or risks involved.

TEADIT® 010-ELE COMBO SET combines 4 rings of "Packing A" plus one ring of "Packing B", following the arrangement "A-A-B-A-A". This provides incomparable performance in the control of fugitive emissions. Laboratory tests by internationally recognized authorities in the field confirm the impressive results. It's high temperature flexible graphite and Inconel® filament jacket affords mechanical stability while the advanced construction provides the best leakage control and high integrity in hydrocarbon and steam services.

TEADIT® 010-ELE COMBO SET is self-lubricating, non-hardening, dimensionally stable and resistant to gases and fluids as well as heat, pressure and chemicals.

KEY FEATURES

- » *Certified Low-Leakage Packing Technology*
- » *Extreme Emission Control*
- » *Fire Safe*
- » *Definitive Combo Set in Valve Sealing*

Specifications

Temperature: -240°C (-400°F) to 650°C (1,200°F) steam
455°C (850°F) atmosphere

pH range: 0 - 14

Pressure: To 310 bar (4,500 psi)

THE GOAL ACHIEVED

**Maximum
10PPMv in
5000 cycles**, as can be seen in the approval of the product in Yarmouth Research and Technology LLC by the strict Chevron method testing.

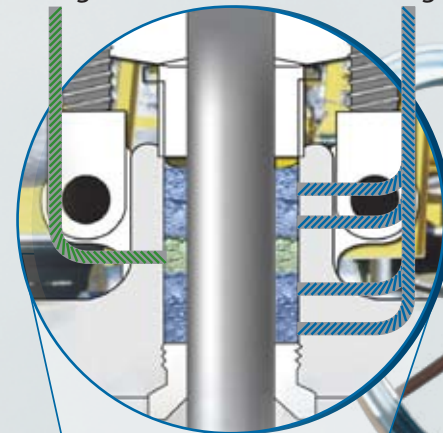


Fugitive Emissions

**Complete report available upon to request.
See on back page report summary.**



Packing B Packing A



TYPICAL TEADIT® 010-ELE ARRANGEMENT

**Exceeds TA-Luft
requirement**



TA-Luft

KEY FEATURES

- » *Certified Low-Leakage Packing Technology*
- » *TA-Luft approved*
- » *Suitable to VOC and VHAP emissions regulations*
- » *Environment friendly valve stem packing with supreme emissions control*

PACKING 2236

PROPERTIES

TEADIT® PACKING 2236 is self-lubricating, non-hardening, dimensionally stable and resistant to gases and fluids as well as heat, pressure and chemicals. Its high temperature flex to graphite and Inconel® filament jacket affords mechanical stability while the advanced construction provides leakage control and high integrity in steam service.

Due to its physical properties and ability to minimize friction, **TEADIT® STYLE 2236** is ideal for valves and can be used within a broad range of applications.

Packing 2236 - Specifications

Temperature: -240°C (-400°F) to 650°C (1,200°F) steam
455°C (850°F) atmosphere

pH range: 0 - 14 (except strong oxidizers)

Pressure: To 450 bar (6,500 psi)

Highly Suitable for services with

Fugitive Emissions



PACKING 2235

TEADIT® PACKING 2235 is ideal for valves and can be used within a broad range of applications. It is well suited for power plants, refineries, petrochemical industry, and chemical processing as well as sealing applications in steam at high pressure and temperature. It is self-lubricating, non-hardening, dimensionally stable and resistant to gases and fluids as well as heat, pressure and chemicals.

KEY FEATURES

- » *Certified Low-Leakage Packing Technology*
- » *Superior performance for high temperature steam service*
- » *Excellent sealing, thermal and pressure properties contribute to the reduction of "fugitive emissions"*
- » *Fire Safe*
- » *Suitable for steam, hydrocarbon and chemical processing services*

Approval for Fire Test and Fugitive Emissions



Fugitive Emissions



Fire Test



Packing 2235 - Specifications

Temperature: -240°C (-400°F) to 650°C (1,200°F) steam
455°C (850°F) atmosphere

pH range: 0 - 14 (except strong oxidizers)

Pressure: To 450 bar (6,500 psi)

Highly Suitable for services with

High Pressure and Temperature

PACKING 2222

PROPERTIES

TEADIT® PACKING 2222 stands out for its characteristic of compatibility with most industrial fluids except in the presence of oxidizing agents. Ideal for severe services in high-temperature and pressure valves, it is indicated for hydrocarbons, steam, water, gases, chemicals, synthetic and mineral oils.

Packing 2222 - Specifications

Temperature: -240°C (-400°F) to 650°C (1,200°F) steam
455°C (850°F) atmosphere

pH range: 0 - 14 (except strong oxidizers)

Pressure: To 275 bar (4,000 psi) without end rings

KEY FEATURES

- » *Superior performance*
- » *Heat, pressure and chemically resistant*



**Approval for
Fire Safe**



Approval for TEADIT® 010-ELE Combo Set

Extreme Emission Control – Maximum 10ppmv in 5,000 cycles

Yarmouth Research and Technology, LLC

PROJECT SUMMARY

Customer: Teadit North America	Start Date: 22-Sep-10
Packing Manufacturer: Teadit	Project #: 210202
Packing Description: Teadit 020-ELE Combo Set	
Test Fixture: 4" C100 Volan Gate Valve	
Manufacturer's Recommended Packing Torque: 35 ft-lb	
Stem Diameter: 0.999 inches	
Bore Diameter: 1.510 inches	
Number of Handwheel Turns During Cycling: 11.5 (each direction)	
Stem Travel During Cycling: 4.1 inches	
Cycling Speed: 43 RPM	
Cycling Rate: 75 seconds per cycle	
Maximum Allowable Leakage: 500 PPMv (stem static)	
Maximum Allowable Handwheel Torque: 83 ft-lb (based on 200lb pull force)	
Test Pressure: 600 psig	
Test Media: 99% Methane	

RESULTS

Reason for Test Completion: 5000 cycles completed

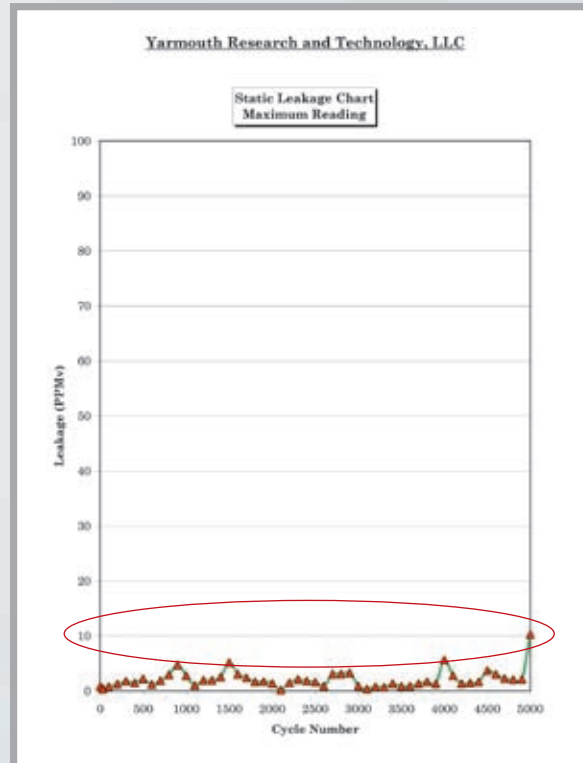
Number of Mechanical Cycles Completed: 5000

Number of Thermal Cycles Completed: 10

Number of Packing Adjustments Required: 0

	Stem Seal Leakage Readings (PPMv)		Opening Torque (ft-lb)		Closing Torque (ft-lb)	
	Avg.	Max.	Avg.	Max.	(ft-lb)	(ft-lb)
Average:	2	2	2	3	15	20
Maximum:	9	10	19	26	18	25

Witness: *Matthew J. Waskewski*



CONCLUSION: TEADIT® 010 ELE COMBO SET successfully completed test **without any packing adjustments** throughout the 5,000 mechanical cycles and maintained leakage below 10 PPMv.

USA

TEADIT® North America, INC
Houston - Texas
1465 E. Sam Houston Pkwy South - 77503
Phone: 800-999-0198 - (281) 476-3900
Fax: (281) 476-3999
sales@teadit.com
www.teadit-na.com



AUSTRIA

TEADIT® International
Kufstein - Tirol
Rosenheimer Str.10 - 6330
Phone: +43-5372-64020-0
Fax: +43-5372-64020-20
austria@teadit.eu
www.teadit-europe.com

Cologne (Germany), Houston (USA), Rio de Janeiro (Brazil), Campinas (Brazil),
Buenos Aires (Argentina), Shanghai (China), Vasai (India)

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