

CHEMRAZ[®]
(FFKM) Overview



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	Chemraz® Compound	Primary Industry	Suggested Applications	Features & Benefits	Service Temperature Range	Chemical Compatibility
General Purpose	504	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Mechanical seals Valves Pump housings Sampling/metering equipment Reactors Mixers Controls/instrumentation Sprayers/dispensers Couplings 	<ul style="list-style-type: none"> Broad chemical compatibility for use with wide range of harsh solutions Lower compression set increases ability to handle temp & pressure variations, shaft misalignment, & o-ring shrinkage Low temp capabilities (-30°C/-22°F) 	-30°C to 230°C (-22°F to 446°F)	<ul style="list-style-type: none"> Acids Caustics Aldehydes Esters Aromatics Hot water/steam Amines Methanol Ketones TBA MTBE
	505	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Mechanical seals Valves Pump housings Reactors Compressors Sampling/metering equipment Mixers Controls/instrumentation Sprayers/dispensers Coupling 	<ul style="list-style-type: none"> Broad chemical compatibility for use with a wide range of harsh solutions Lower compression set increases ability to handle temp and pressure variations, shaft misalignment, & o-ring shrinkage 	-30°C to 230°C (-22°F to 446°F)	<ul style="list-style-type: none"> Acids Caustics Aldehydes Esters Ethers Aromatics Hot water/steam Amines Methanol Ketones TBA MTBE
	510	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Mechanical seals Valves Pump housings Sampling/metering equipment Reactors Mixers Controls/instrumentation Sprayers/dispensers Couplings Compressors 	<ul style="list-style-type: none"> Broad chemical compatibility Low temp capabilities (-30°C/-22°F) Higher hardness and density reduces likelihood of gap extrusion 	-30°C to 230°C (-22°F to 446°F)	<ul style="list-style-type: none"> Acids Caustics Aldehydes Esters Aromatics Hot water/steam Amines Methanol Ketones TBA MTBE
	513	Semiconductor	<p>Dry wafer processing equipment seals:</p> <ul style="list-style-type: none"> Door seals Slit valves Window seals Isolator valve seals Lid seals Gas inlet seals KF fitting seals 	<ul style="list-style-type: none"> Good plasma resistance Good physical properties Minimal contamination Excellent performance history as “universal product” 	-30°C to 210°C (-22°F to 410°F)	-

	Chemraz® Compound	Primary Industry	Suggested Applications	Features & Benefits	Service Temperature Range	Chemical Compatibility
General Purpose	514	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Mechanical seals Valves Pump housings Reactors Mixers Sprayers/dispensers Couplings 	<ul style="list-style-type: none"> No carbon black residue Low-temp capabilities (-30°C/-22°F) 	-30°C to 220°C (-22°F to 428°F)	-
	520	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> Door seals Slit valves Isolator valve seals Lid seals Gas inlet seals KF fitting seals 	<ul style="list-style-type: none"> Excellent plasma resistance Outstanding physical properties Low contaminants Withstands higher sealing loads Excellent performance history in higher temp applications 	-30°C to 240°C (-22°F to 464°F)	-
	543	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> Door seals Slit valves Window seals Isolator valve seals Lid seals Gas inlet seals KF fitting seals 	<ul style="list-style-type: none"> Good plasma resistance Good physical properties Minimal contamination Excellent performance as a “universal product” 	-30°C to 210°C (-22°F to 410°F)	-
	550	Semiconductor	Aqueous wafer processing equipment seals: <ul style="list-style-type: none"> Valve seals Fitting & union seals Gaskets Regulator seals Filter seals 	<ul style="list-style-type: none"> Good chemical resistance & physical properties Used where contamination requirements are less critical Excellent performance history 	-30°C to 210°C (-22°F to 410°F)	-

	Chemraz® Compound	Primary Industry	Suggested Applications	Features & Benefits	Service Temperature Range	Chemical Compatibility
General Purpose	551	Semiconductor	<p>Aqueous wafer processing equipment and chemical/DI water distribution system seals:</p> <ul style="list-style-type: none"> • Valve seals • Fitting and union seals • Gaskets • Regulator seals • Filter seals • Dispensing seals 	<ul style="list-style-type: none"> • Broad chemical compatibility • High-temp capability • Excellent compression set • Breadth of capabilities allows for standardization on one material & reduces inventory line items • Longer & better seal integrity in seal applications; lower overall equipment cost of operation 	-12°C to 316°C (-10°F to 600°F)	-
	584	<ul style="list-style-type: none"> • Oil & Gas • Chemical Processing • Industrial 	<ul style="list-style-type: none"> • Mechanical seals • Sampling/metering equipment • Pump housings 	<ul style="list-style-type: none"> • Superior chemical resistance for use in strong oxidation fluids & hot aqueous solutions as well as chlorine & ozone • No carbon black residue 	-30°C to 220°C (-22°F to 428°F)	-
	592	Semiconductor	<p>Dry wafer processing equipment seals:</p> <ul style="list-style-type: none"> • Slit valve seals • Lid seals • Endpoint windows • Valve seals • Window seals • Isolator valve seals • Gas inlet seals • Bell jar seals • KF fitting seals 	<ul style="list-style-type: none"> • Excellent physical properties • Inert mineral filler system provides excellent resistance to plasma attack • Good static & dynamic performance 	-30°C to 240°C (-22°F to 464°F)	-
	600	<ul style="list-style-type: none"> • Oil & Gas • Chemical Processing • Industrial 	<ul style="list-style-type: none"> • Mechanical seals • Pump housings • Reactors • Mixers • Valves • Compressors 	<ul style="list-style-type: none"> • High durometer & high-density material helps withstand high pressure & harsh environments • Broad chemical resistance range • High-temperature capability 	-30°C to 230°C (-22°F to 446°F)	-

	Chemraz® Compound	Primary Industry	Suggested Applications	Features & Benefits	Service Temperature Range	Chemical Compatibility	
General Purpose	605	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Mechanical seals Pump housings Reactors Mixers Valves Compressors Sampling/metering equipment Controls/instrumentation Sprayers/dispensers Diaphragms Couplings 	<ul style="list-style-type: none"> High-temperature capability Excellent compression set resistance Broad chemical compatibility for use with a wide range of harsh solutions 	-20°C to 260°C (-4°F to 500°F)	<ul style="list-style-type: none"> Acids Caustics Aldehydes Esters Ethers Aromatics Hot water/steam Amines Methanol Ketones TBA MTBE 	
	Rapid Gas Decompression Resistance	526	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Pumps Mechanical seals Valves Downhole completion tools Compressors 	<ul style="list-style-type: none"> Excellent RGD resistance Broad chemical resistance Meets RGD requirements of Total GS EP PVV 142 & NACE TM0297 ISO 23936-2/ NORSOK M-710 	-20°C to 250°C (-4°F to 482°F)	<ul style="list-style-type: none"> Sour gas Acids Caustics Hot water/steam
		566 LT	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Deepwater drilling tools Subsea equipment Downhole completion tools used in water injection wells 	<ul style="list-style-type: none"> Exceptional performance in extreme low temps Superior resistance to hostile reservoir chemistries Excellent compression set & thermal shock resistance 	-40°C to 230°C (-40°F to 446°F)	-
		678	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Wireline tools High pressure applications Subsea Downhole Completion tools Downhole drilling tools 	<ul style="list-style-type: none"> Excellent RGD resistance Exceptional performance in extreme low temps Superior resistance to hostile reservoir chemistries, drilling fluid, production chemicals Excellent compression set & thermal shock resistance Meet RGD requirements of ISO 23936-2/ NORSOK M-710 	-40°C to 230°C (-40°F to 446°F)	-
Aerospace	676	Aerospace	Perfluoroelastomer (FFKM) compound where ultra high-temperature &/or excellent chemical compatibility is required	Meets AMS 7257E	-18°C to 324°C (0°F to 615°F)	Strong chemical resistance to all common Aerospace fluids	

	Chemraz® Compound	Primary Industry	Suggested Applications	Features & Benefits	Service Temperature Range	Chemical Compatibility
High Temperature	555	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Mechanical seals Valves Pump housings Sampling/metering equipment Reactors Quick connect couplings Mixers Controls/instrumentation Compressors Sprayers/dispensers 	<ul style="list-style-type: none"> Superior high temp capability (316°C/600°F) Broad chemical resistance in wide range of media Excellent compression set maintains seal integrity in wide temp & pressure variations as well as vibration 	-12°C to 316°C (10°F to 600°F)	<ul style="list-style-type: none"> Acids Caustics Aldehydes Esters Ethers Aromatics Hot water/steam Amines Methanol Ketones Mixed process streams TBA MTBE
	562	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Completion tools Electrical submersible pumps Mechanical seals 	<ul style="list-style-type: none"> Excellent compression set resistance Excellent steam & chemical resistance 	-12°C to 316°C (10°F to 600°F)	<ul style="list-style-type: none"> Steam Reservoir fluids with high H₂S Caustics Hot water/steam
	615	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Mechanical seals Process control instruments Heat exchangers Valves Agitators & mixers Pumps Couplings 	<ul style="list-style-type: none"> Low compression set at continuous temps up to 324°C (615°F) Ability to handle severe thermal cycles Excellent chemical resistance 	-18°C to 324°C (0°F to 615°F)	<ul style="list-style-type: none"> Inorganic & organic chemicals Acids Reagents Heat transfer fluids Hydrocarbons
	694	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Electrical submersible pumps Downhole completion tools 	<ul style="list-style-type: none"> Superior resistance to hostile reservoir chemistries, drilling fluid, additives, & production chemicals Excellent compression set & thermal shock resistance Increased reliability of components used in critical steam & high-temp environments 	-12°C to 316°C (10°F to 600°F)	<ul style="list-style-type: none"> Inorganic & organic chemicals Acids Hydrocarbons
	SFX	<ul style="list-style-type: none"> Industrial Semiconductor 	Subfab applications including abatement units, exhaust lines, pumps and valves	<ul style="list-style-type: none"> Broad chemical resistance to typical Subfab effluents Optimized physical properties for long life in static vacuum fittings 	-12°C to 300°C (10°F to 572°F)	<ul style="list-style-type: none"> Chlorine Fluorine Hydrogen Oxygen

	Chemraz® Compound	Primary Industry	Suggested Applications	Features & Benefits	Service Temperature Range	Chemical Compatibility
USP VI/FDA	517	Life Science	<ul style="list-style-type: none"> Mechanical seals Sampling/metering equipment Pump housings 	<ul style="list-style-type: none"> No carbon black residue Low-temp capabilities (-30°C/-22°F) 	-30°C to 220°C (-22°F to 428°F)	-
	585	Life Science	<ul style="list-style-type: none"> Mechanical seals Sampling/metering equipment Pump housings Reactors Mixers Valves Controls/instrumentation Couplings 	<ul style="list-style-type: none"> Superior chemical resistance for use in strong oxidation fluids & hot aqueous solutions as well as chlorine & ozone No carbon black residue 	-30°C to 220°C (-22°F to 428°F)	-
	625	Life Science	<ul style="list-style-type: none"> Mechanical seals Valves Pumps Mixers fermenters Biomedical equipment Couplings Filters Dryers Agitators Sanitary seals WFI gaskets 	<ul style="list-style-type: none"> Superior high-temperature properties Outstanding hot water & steam resistance 3-A® & FDA compliant, meeting the highest purity standards 	-20°C to 260°C (-4°F to 500°F)	<ul style="list-style-type: none"> Fuel handling CIP/SIP operations Pharmaceutical manufacturing
Wet Applications	570	Semiconductor	<p>Aqueous wafer processing equipment seals:</p> <ul style="list-style-type: none"> Valve seals Fitting & union seals Gaskets Regulator seals Filter seals Dispensing seals 	<ul style="list-style-type: none"> Very low contaminants Extended performance & added reliability Good physical properties Excellent performance history 	-30°C to 210°C (-22°F to 410°F)	<ul style="list-style-type: none"> Acids Solvents Ultrapure H₂O
	571	Semiconductor	<p>Aqueous wafer processing equipment seals:</p> <ul style="list-style-type: none"> Valve seals Fitting & union seals Gaskets Regulator seals Filter seals Dispensing seals 	<ul style="list-style-type: none"> Very low contaminants Extended performance & added reliability Good physical properties Excellent performance history 	-30°C to 210°C (-22°F to 410°F)	<ul style="list-style-type: none"> Acids Solvents Ultrapure H₂O

	Chemraz® Compound	Primary Industry	Suggested Applications	Features & Benefits	Service Temperature Range	Chemical Compatibility
Clean-Deposition/Etch	629	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> • Slit valve seals • Lid seals • Endpoint windows • Valve seals • Window seals • Isolator valve seals • Gas inlet seals • Bell jar seals • KF fitting seals 	<ul style="list-style-type: none"> • Exceptional plasma resistance in oxygen & fluorine environments • Minimal particulation & surface degradation • High purity, very low metallic ion content • High elasticity allows conformance to hardware & easier seal installation 	-20°C to 260°C (-4°F to 500°F)	-
	639	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> • Endpoint windows • Bell jar seals • Valve seals • KF fitting seals • Window seals • Isolator valve seals • Lid seals • Gas inlet seals • Slit valve seals • Chamber seals 	<ul style="list-style-type: none"> • Exceptional plasma resistance in oxygen & fluorine environments • Minimal particulation & surface degradation • High purity, very low metallic ion content 	-20°C to 260°C (-4°F to 500°F)	-
Clean-Deposition	547	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> • Lid seals • Endpoint windows • Gas inlet/outlet seals • Chamber seals • Valve seals • Slit valve seals • Isolation valve seals • Gasket seals • Dispersing seals • Regulator seals • Filler seals 	<ul style="list-style-type: none"> • Exceptional plasma resistance in fluorine environments • Minimal particulation & surface degradation • High purity, very low metallic ion content • Excellent compression set for repeated use 	Max service temperature: 300°C (572°F)	-
	XRZ	Semiconductor	NF ₃ plasma cleaning equipment seals: <ul style="list-style-type: none"> • Chamber seals • Endpoint windows • Gas inlet/outlet seals • Gate valve seals • Isolator valve seals • Reactant delivery system seals • Reaction chamber lid seals • Slit valve seals 	<ul style="list-style-type: none"> • Outstanding plasma resistance in highly corrosive fluorine environments with minimal seal degradation • Excellent surface resistance for minimal particulation & sealing integrity • High purity for minimal contamination risk • Minimal compression set at elevated temps ensures seal integrity • Extended equipment uptime with added reliability in dry applications 	Max service temperature: 300°C (572°F)	-

	Chemraz® Compound	Primary Industry	Suggested Applications	Features & Benefits	Service Temperature Range	Chemical Compatibility
Clean Etch	657	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> • Endpoint windows • Bell jar seals • Valve seals • KF fitting seals • Window seals • Isolator valve seals • Lid seals • Gas Inlet seals • Slit valve seals • Chamber seals 	<ul style="list-style-type: none"> • Excellent plasma resistance in a variety of aggressive chemical environments • Minimal particulation • Withstands high service temps up to 280°C (536°F) with excursions to 300°C (572°F) 	-18°C to 324°C (0°F to 615°F)	-
	E38	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> • Bonded gate seals • Chamber seals 	<ul style="list-style-type: none"> • Minimal contamination • Withstands a variety of aggressive chemicals • Excellent physical properties • Low metal ion content • Unlimited design flexibility 	-20°C to 260°C (-4°F to 500°F)	-
	XPE-HP	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> • Chamber and slit valve seals • Endpoint windows • Gas inlet/outlet seals • Gate and isolator valve seals • Reactant delivery system seals • Reaction chamber lid seals 	<ul style="list-style-type: none"> • High UV & ozone resistance enables next generation process technology insertions • Superior O₂ plasma resistance results in improved product integrity • High-temp capability • Reduced erosion & particulation • Decreased maintenance & replacement requirements • Excellent compression set 	Max service temperature: 255°C (491°F)	<ul style="list-style-type: none"> • O₂ plasma • Ozone • Fluorine-based plasmas
	XPE	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> • Chamber & slit valve seals • Endpoint windows • Gas inlet/outlet seals • Gate and isolator valve seals • Reactant delivery system seals • Reaction chamber lid seals 	<ul style="list-style-type: none"> • High-temperature capability enables future technology & next generation applications • Superior O₂ plasma resistance resulting in improved product integrity • High CF₄ plasma resistance • Reduced product weight loss • Decreased maintenance & replacement requirements • Excellent compression set performance 	Max service temperature: 280°C (536°F)	Fluorine-based plasmas

	Chemraz® Compound	Primary Industry	Suggested Applications	Features & Benefits	Service Temperature Range	Chemical Compatibility
Low Temperature	564 LT	<ul style="list-style-type: none"> Oil & Gas Chemical Processing Industrial 	<ul style="list-style-type: none"> Deepwater drilling tools Subsea equipment Downhole completion tools used in water injection wells 	<ul style="list-style-type: none"> Exceptional performance in extreme low temps Superior resistance to hostile reservoir chemistries Excellent compression set & thermal shock resistance 	-40°C to 230°C (-40°F to 446°F)	-
BSV - Deposition/Etch	656	Semiconductor	Dry wafer processing equipment seals: <ul style="list-style-type: none"> Bonded slit valve gates Chamber seals Window seals Gas inlet seals Lid seals 	<ul style="list-style-type: none"> Excellent plasma resistance Soft material for low sealing forces & tolerance stackups High purity, very low metallic ion content 	-20°C to 232°C (-4°F to 450°F)	-

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Please consult with a Greene Tweed engineer on which compound will best meet the requirements of your application.

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