



## MARKEZ® Z2001 HIGH TEMP STEAM PERFLUORO TECHNICAL DATASHEET – REV 1, APRIL 2019

Z2001 is our universal compatibility, high temperature FFKM compound. Z2001 features a relative low cost, an extremely broad range of chemical and temperature resistance, and extreme resistance to high temperature steam. Used as a cost-effective alternative to Kalrez 6375 and Chemraz 555 in countless applications across various industries where resistance to harsh solvents and steam resistance is required. Available in o-rings and custom shapes. Our experienced application engineers welcome the opportunity to assist you in selecting the compound that provides the best value for your application.

### FEATURES AND BENEFITS

- FDA Compliant
- USP VI (87 & 88)
- AED NACE TM0297 (Damage Rating 1)
- Nearly universal chemical compatibility
- Compatible with steam < 600°F
- Compatible with amines < 160°F
- Good dynamic properties - Long service life
- Low compression set

### APPLICATION EXAMPLES

- Steam in place sterilization (SIP)
- High-Temperature autoclave
- Nuclear reactor valves
- Petro-Chem equipment, Sour gas
- Inorganic & Organic Acids & Alkine
- Ketones, Esters, Ethers, Aldehydes
- Solvents
  - Acetone, Heptane
  - Glycol ethers, Naphtha
  - Toluene, Turpentine
  - White spirit, Xylene
  - Methyl ethyl ketone (MEK)
  - Dimethylformamide (DMF)
- Liquid chromatography equipment
- Mechanical seals
- Chemical sprayers, injectors and reactors
- Connectors, Controls & Filters
- Pumps & Valves
- Aerospace Fuels, Skydrol & Oils
- Semiconductor Applications
  - Dry etch
  - Strip
  - LPCVD
  - Litho/Track
  - ECP
  - Exhaust valves

### TYPICAL PHYSICAL PROPERTIES

PROPERTIES	ASTM	TYPICAL VALUE
Color		Black
Material Type	FFKM	FFKM
Hardness, Shore A	D2240	80
100% Modulus, MPa (psi)		13.9 (2,016)
Tensile Strength, MPa (psi)	D412	15.3 (2,219)
Elongation at Break, %	D412	115
Compression Set: 24 hrs. @ 200°C (392 °F)		15%
Compression Set: 72 hrs. @ 200°C (392 °F)		21%
Min Operating Temp (lower spikes)		-15 °C ( 5°F)
Max Operating Temp (higher spikes)		320 °C ( 608°F)



This information is to the best of our knowledge accurate and reliable. However, Marco Rubber makes no warranty, expressed or implied, that parts manufactured from this material will perform satisfactorily in the customer's application. It's the customer's responsibility to evaluate parts prior to use.

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# TESTING RESULTS OF MARKEZ® Z2001 UNDER VARIOUS CONDITIONS

## ULTIMATE STEAM RESISTANCE: COMPRESSION SET

Z2001 is the ultimate solution for applications with high temperature steam and extreme chemicals. With a new patented vulcanizing agent, Markez Z2001 dominates the competition.

When tested for 72 hrs against a group of FFKM competitors, Z2001 consistently exhibits the best compression set under high temperature steam conditions.

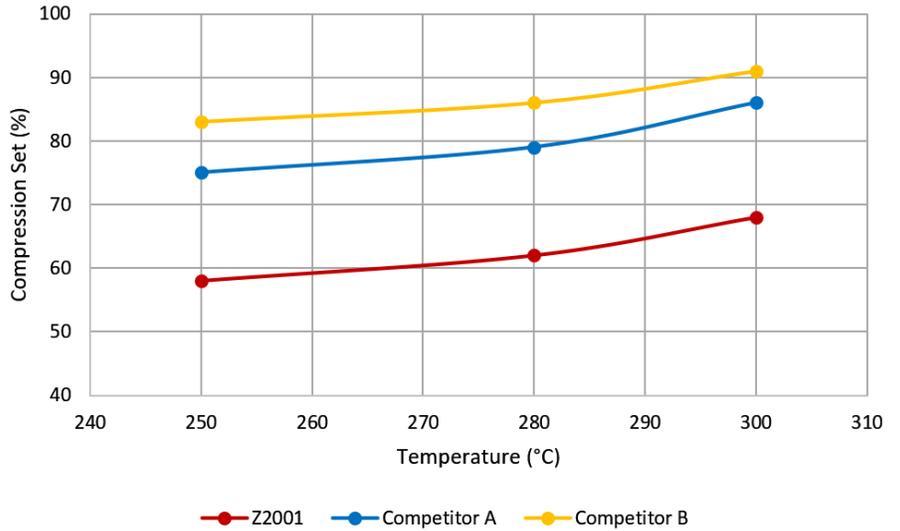
## ULTIMATE STEAM RESISTANCE: VOLUME SWELL

When tested for 168hrs against the same group of FFKM competitors, Z2001 was the only compound not to experience significant volume swell. While competitor FFKM compounds swelled up to or over 20% of their original volume, Z2001 maintained a volume swell of less than 5%.

## ULTIMATE STEAM RESISTANCE: EXCURSIONS TO 320°C

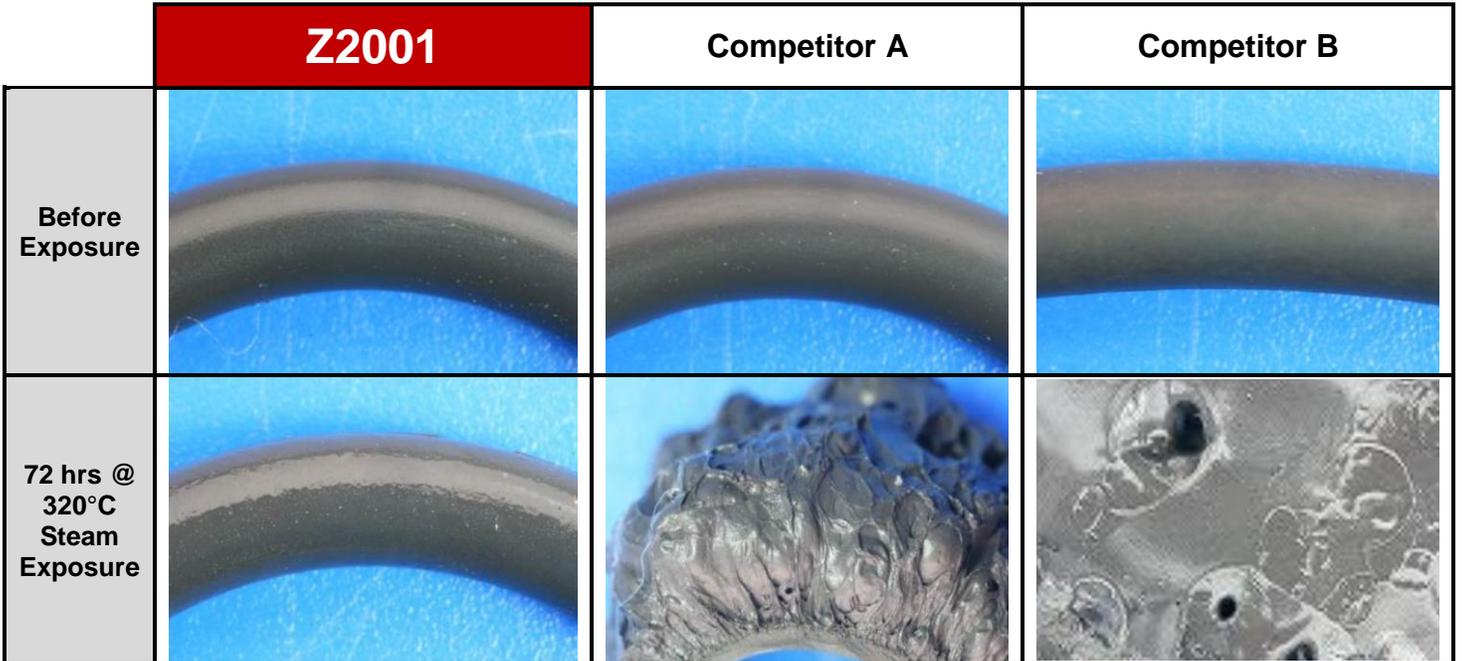
Markez Z2001 is even capable of steam excursions up to 320°C. While other FFKM compounds rated for high temperature steam suffer from surface sparking and fusion at 320°C, Z2001 maintains integrity and functionality. Z2001's performance speaks for itself.

Compression Set in High Temp Steam (72 hrs)



VOLUME SWELL % UNDER HIGH TEMP STEAM

Steam Resistance	Z2001	Competitor A	Competitor B
168 hrs. @ 150°C	< 5%	< 5%	< 5%
168 hrs. @ 250°C	< 5%	>20%	< 5%
168 hrs. @ 300°C	< 5%	>20%	10 ~ 20%



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