WACKER

SAFETY DATA SHEET

Material: 60004619 **WACKER® RTV-S 691 B**

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1. Product and company identification

1.1 Identification of the substance or preparation:

Trade name	**WACKER® RTV-S 691 B**
Product group:	RTV Silicone Rubber
Use of the Substance/Mixture	Industrial. Raw material for: elastomer products .

1.2 Company/undertaking identification:

Manufacturer/distributor:	Wacker Chemie AG Gisela-Stein-Straße 1 81671 München Germany
Customer information:	Wacker Chemical Corporation 4950 S State Road Ann Arbor, MI 48108 InfoLine: Tel (517) 264-8240 Hours of operation: Monday - Friday, 8 am to 5 pm (eastern standard time) Corporate website: www.wacker.com
Emergency telephone no. (24h):	**(517) 264-8500**
Transportation emergency:	(800) 424-9300 (CHEMTREC, USA) (703) 527-3887 (CHEMTREC, international)

This SDS was prepared by the Regulatory Affairs and Product Safety Department (RAPS) of Wacker Chemical Corporation.

2. Hazards identification

2.1 Classification of the substance or mixture

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200):

Not a hazardous substance or mixture.

2.2 Label elements

GHS-Labelling:

No labeling according to GHS required.

2.3 Other hazards

Product can release hydrogen. Risk of hydrogen gas formation with water, alcohols, acids, metallic salts, amines and alkalis. In combination with oxygen, the released hydrogen can form oxyhydrogen.
Endocrine disrupting properties - human health: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Endocrine disrupting properties - environment: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

3. Composition/information on ingredients

3.1 Chemical characterization (substance)

Chemical characterization
Polysiloxane with functional groups

3.2 Information on ingredients:

This material does not contain any ingredients above the permitted limit(s).

Substances listed in the Subsections "HAPS" and "California Proposition 65 Carcinogens / Reproductive Toxins" that are not listed in this section are only present at quantities below 0.1% for California Proposition 65 listed toxins or below 1% for non-carcinogenic HAPS or they are inextricably bound in the product. Specific chemical identities and/or exact percentage (concentration) of the composition may have been withheld as a trade secret.

This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57) in amounts above ≥ 0.1%.

4. First-aid measures

4.1 General information:

Get medical attention if irritation or other symptoms occur. Before seeking medical attention remove contaminated clothing and shoes. Take a copy of the Safety Data Sheet when going for medical treatment.

4.2 If inhaled

No special treatment required.

4.3 In case of skin contact

Wipe off excess material with cloth or paper. Use a waterless hand cleaner to remove as much of the remaining material as possible. Wash with soap and water.

4.4 In case of eye contact

If contact with eyes, immediately hold eyelids apart and flush with plenty of water for at least 15 min.

4.5 If swallowed

No special treatment required.

5. Fire-fighting measures

5.1 Flammable properties:

Property:		Value:	Method:
Flash point	:	> 250 °C (> 482 °F)	(DIN 51376)
Boiling point/boiling range	:	exempt	
Lower explosion limit	:	exempt	
Upper explosion limit	:	exempt	
Ignition temperature	:	> 400 °C (> 752 °F)	(DIN 51794)
NFPA Hazard Class (comb./flam.liquid)	:	IIIB	

5.2 Fire and explosion hazards:

Caution! Under certain conditions this material may generate flammable hydrogen gas. Consider possible formation of explosive mixtures with air, for example in uncleaned containers by moisture. Never use welding or cutting torch on or near any container of this material, even if empty, because an explosion could occur. Spontaneous ignition is possible due to electrostatic discharge. The generation of hydrogen gas is increased under circumstances mentioned in Sect. 10 "Stability and reactivity". Explosion limits for hydrolysis product hydrogen: 4-75.6% v/v.

5.3 Recommended extinguishing media:

carbon dioxide , dry sand , alcohol-resistant foam .

5.4 Unsuitable extinguishing media:

Water, dry chemical, halones.

5.5 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases

Hazardous decomposition products: carbon dioxide , carbon monoxide , formaldehyde , silicon dioxide , benzene and incompletely burnt hydrocarbons .

5.6 Fire fighting procedures:

Fire fighters should wear full protective clothing including a self-contained breathing apparatus. Cool endangered containers with water. Hydrogen gas can become trapped under foam blankets, so sources of ignition must be eliminated during the clean-up and recovery process.

6. Accidental release measures

6.1 Precautions:

Secure the area. Wear personal protection equipment (see section 8). Keep unprotected persons away. If material is released indicate risk of slipping. Do not walk through spilled material.

HAZWOPER PPE Level: D

6.2 Containment:

Prevent material from entering surface waters, drains or sewers and soil. Close leak if possible without risk. Contain any fluid that runs out using suitable material (e.g. earth). Retain contaminated water/extinguishing water. Dispose of in prescribed marked containers. Inform authorities if substance leaks into surface waters, sewerage or ground.

Spills of material which could reach surface waters must be reported to the United States Coast Guard National Response Center's toll free phone number (800) 424-8802.

6.3 Methods for cleaning up

Take up mechanically and dispose of according to local/state/federal regulations. Do not flush away with water. For small amounts: Absorb with a neutral (non-acidic / non-basic) liquid binding material such as diatomaceous earth and dispose of according to government regulations. For large amounts: Liquids may be recovered using suction devices or pumps. Use only air driven or properly rated electrical eqiupment. Use vented recovery containers. Clean any slippery coating that remains using a detergent / soap solution or another biodegradable cleaner. Silicone fluids are slippery; spills are a safety hazard. Apply sand or other inert granular material to improve traction.

6.4 Further information:

Exhaust vapours. Eliminate all sources of ignition. Consider explosion protection. Material designated for disposal must be segregated from incompatible substances or materials specified in Sect. 10. Do not blend contaminated material with uncontaminated material. Do not seal collecting vessel gas-tight. Observe notes under section 7.

7. Handling and storage

7.1 General information:

Stir thoroughly before use or catalysing.

7.2 Handling

Precautions for safe handling:
Ensure adequate ventilation. Open and handle container with care. Keep container closed when not in use. Keep away from incompatible substances in accordance with section 10. Where possible, inert process equipment and blanket vessels, tanks and containers with nitrogen to reduce the available oxygen level. Contact WACKER for additional publications on the safe Handling of SiH Products. Avoid formation of aerosols. In case of aerosol formation special protective measures are required (exhausting by suction, respiratory protection). Spilled substance increases risk of slipping. Observe information in section 8.

Precautions against fire and explosion:
Product can release hydrogen. Flammable vapors may accumulate and form explosive mixtures with air in containers, process vessels, including partial, empty and uncleaned containers and vessels, or other enclosed spaces. Keep away from sources of ignition and do not smoke. Take precautionary measures against electrostatic charging. Cool endangered containers with water.

7.3 Storage

Conditions for storage rooms and vessels:
Do not store in virgin glass containers with basic surface. Observe local/state/federal regulations.

Advice for storage of incompatible materials:
Do not store with: basic substances (e.g. alkalis, ammonia, amines) , oxidizing agents , strong acids . Observe local/state/federal regulations.

Further information for storage:
Store in a dry and cool place. Protect against moisture. Store container in a well ventilated place.

8. Exposure controls and personal protection

8.1 Engineering controls

Ventilation:
Use only with adequate ventilation.

Local exhaust:
Local exhaust ventilation which meets the requirements of ANSI Z9.2 is recommended to control airborne contaminants at the point of use.

8.2 Associate substances with specific control parameters such as limit values

Maximum airborne concentrations at the workplace:

Substance	Type	mg/m³	ppm	Dust fract.

none known

8.3 Personal protection equipment (PPE)

Respiratory protection:
Respiratory protection is not normally required.

Hand protection:
Recommendation: butyl rubber protective gloves , neoprene gloves , PVC gloves .

Eye protection:
Safety glasses with side shields or chemical safety goggles.

Other protective clothing or equipment:
Additional protective clothing or equipment is not normally required. Provide eye bath and safety shower.

8.4 General hygiene and protection measures:

When handling do not eat, drink, smoke or apply cosmetics. Wash thoroughly after handling.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Property:	Value:	Method:
Physical state	liquid	
Colour	colourless	
Odour	odourless	
Odour Threshold	no data available	
Melting point	not determined	
Boiling point/boiling range	exempt	
Lower explosion limit	exempt	
Upper explosion limit	exempt	
Flash point	> 250 °C	(DIN 51376)
Ignition temperature	> 400 °C	(DIN 51794)
Thermal decomposition	> 200 °C	
pH	Not applicable. Insoluble in water.	
Viscosity, kinematic	no data available	
Viscosity, dynamic	200 - 240 mPa.s at 20 °C	
Water solubility	practically insoluble at 20 °C	
Partition coefficient: n-octanol/water	no data available	
Vapour pressure	exempt	
Density	1 g/cm³ (20 °C)	
Relative vapour density	no data available	
Particle Size Distribution	Not applicable.	

9.2 Other information

Explosion limits for released hydrogen: 4 - 75.6%(V). According to previous experience autoignition of SiH containing products on a catalytically active surface may occur at a much lower temperature than expected. This applies to porous or fibrous substances including those with alkaline surfaces, such as thermal insulation and cementaceous insulating materials.

Property:	Value:	Method:
Evaporation rate	no data available	
Molecular weight	no data available	

10. Stability and reactivity

10.1 General information:

If stored and handled in accordance with standard industrial practices no hazardous reactions are known.

10.2 Conditions to avoid

Moisture, heat, open flames, and other sources of ignition. Contact with contaminated piping or vessels or with corroded and rusty containers can increase the rate of hydrogen formation. Observe information in section 7.

10.3 Materials to avoid

Proton-active substances. Reacts violently with: acids , basic substances (e.g. alkalis, ammonia, amines) . Reacts with: alcohols , water , moisture , oxidizing agents , catalyst . The reaction takes place with the formation of hydrogen.

10.4 Hazardous decomposition products

In contact with incompatible substances this material may quickly generate a large volume of flammable hydrogen gas. Measurements have shown the formation of small amounts of formaldehyde at temperatures above about 150 °C (302 °F) through oxidation. Measurements have shown the formation of small amounts of benzene at temperatures above about 180 °C (356 °F).

10.5 Further information:

Hazardous polymerization cannot occur.

11. Toxicological information

11.1 Information on toxicological effects

11.1.1 Acute toxicity

Product details:

Exposure routes	Result/Effect
Oral	LD50 > 2000 mg/kg Neither mortality nor clinical signs of toxicity were observed with the given dose. Species: Rat, Source: Conclusion by analogy
dermal	LD50 > 2000 mg/kg Neither mortality nor clinical signs of toxicity were observed with the given dose. Species: Rat, Source: Expert judgement

11.1.2 Skin corrosion/irritation

Product details:

No skin irritation (Species: Rabbit, Source: Conclusion by analogy)
Product displays good compatibility with the skin. (Species: Voluntary persons, Test system: Human skin patch test, Exposure duration: 24 h)

11.1.3 Serious eye damage/eye irritation

Product details:

No eye irritation (Species: Rabbit, Source: Conclusion by analogy)

11.1.4 Respiratory or skin sensitization

Product details:

Exposure routes	Result
Skin contact	Does not cause skin sensitization. (Species: Guinea pig, Test system: Maximisation Test, Method: OECD 406, Source: Conclusion by analogy)

Inhalation	No data available.

11.1.5 Germ cell mutagenicity

negative
(Test system: mutation assay (in vitro) / bacterial cells, Method: OECD 471, Source: Conclusion by analogy)

11.1.6 Carcinogenicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.7 Reproductive toxicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.8 Specific target organ toxicity - single exposure

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.9 Specific target organ toxicity - repeated exposure

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.10 Aspiration hazard

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.11 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

11.1.12 Further toxicological information

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Other information: None known.

12. Ecological information

12.1 Toxicity

Assessment:

Evaluation on basis of physical-chemical properties: No expected damaging effects to aquatic organisms.

Product details:

Result/Effect	Species/Test system	Source
LL50: > 1000 mg/l (nominal) The effect level is greater than the maximum achievable concentration. The value refers to the water-accommodated fraction (WAF).	static test Fish (96 h)	literature (Polydimethylsiloxane)
EC50: > 0.0001 mg/l (measured) The effect level is greater than the maximum achievable concentration. The value refers to the water-accommodated fraction (WAF).	static test Daphnia magna (Water flea) (48 h)	literature (Polydimethylsiloxane)

IC50 (Growth rate): > 100000 mg/l (nominal) The effect level is greater than the maximum achievable concentration. The value refers to the water-accommodated fraction (WAF).	static test Skeletonema costatum (marine diatom) (72 h)	literature (Polydimethylsiloxane)
NOEC: > 10000 mg/kg	feeding study Oncorhynchus mykiss (rainbow trout) (28 d)	literature (Polydimethylsiloxane)
NOEC (mortality): > 500 mg/kg The exposure to treated sediment did not result in effects.	exposure via sediment Daphnia magna (Water flea) (21 d)	literature (Polydimethylsiloxane)
NOEC (Growth): > 500 mg/kg The exposure to treated sediment did not result in effects.	exposure via sediment Daphnia magna (Water flea) (21 d)	literature (Polydimethylsiloxane)
NOEC (reproduction rate): > 500 mg/kg The exposure to treated sediment did not result in effects.	exposure via sediment Daphnia magna (Water flea) (21 d)	literature (Polydimethylsiloxane)

12.2 Persistence and degradability

Assessment:

Polymer component: biologically not degradable. Elimination by adsorption to activated sludge.

12.3 Bioaccumulative potential

Assessment:

Polymer component: No adverse effects expected.

12.4 Mobility in soil

Assessment:

Polymer component: insoluble in water.

12.5 Results of PBT and vPvB assessment

PBT assessment
No data available.

vPvB Assessment
No data available.

12.6 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

none known

13. Disposal considerations

13.1 Product disposal

Recommendation:
Risk of oxyhydrogen formation upon contact with the substances mentioned in 10. Material designated for disposal must be segregated from incompatible substances or materials specified in Sect. 10. Wastes of this material should not be mixed with other wastes. Provide measures such as vented bungs to ensure pressure relief in the waste containers. Material that cannot be used, reprocessed or recycled should be disposed of in accordance with Federal, State, and local regulations at an approved facility. Depending on the regulations, waste treatment methods may include, e.g., landfill or incineration.

13.2 Packaging disposal

Recommendation:
Containers may contain hazardous quantities of hydrogen gas. Uncleaned containers should not be reused to hold another material due to the potential for reaction between residual product and incompatible materials. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local/state/federal regulations. Uncleaned packaging should be treated with the same precautions as the material.

14. Transport information

14.1 US DOT & CANADA TDG SURFACE

Valuation .....: Not regulated for transport
Other Information .....: Must be shipped with certified carrier.

14.2 Transport by sea IMDG-Code

Valuation .....: Not regulated for transport

14.3 Air transport ICAO-TI/IATA-DGR

Valuation .....: Not regulated for transport
Comment.....: Due to safety reasons no air transport of inner packagings > 1kg!

15. Regulatory information

15.1 U.S. Federal regulations

TSCA inventory status and TSCA information:
This material or its components are listed on or are in compliance with the requirements of the TSCA Chemical Substance Inventory.

TSCA 12(b) Export Notification:
This material does not contain reportable amounts of any TSCA 12(b) listed chemicals.

CERCLA Regulated Chemicals:
This material does not contain any CERCLA regulated chemicals.

SARA 302 EHS Chemicals:
This material does not contain any SARA extremely hazardous substances.

SARA 311/312 Hazard Class:
No SARA Hazards

SARA 313 Chemicals:
This material does not contain any SARA 313 chemicals above de minimus levels.

HAPS (Hazardous Air Pollutants):
This material does not contain any hazardous air pollutants.

15.2 US State Regulations

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)

This material does not contain any chemicals known to the State of California to cause cancer.

This material does not contain any chemicals known to the State of California to cause reproductive effects.

Massachusetts Right To Know
Product does not contain any listed chemicals

15.3 Details of international registration status

Relevant information about individual substance inventories, where available, is given below.

Japan ..... : **ENCS** (Handbook of Existing and New Chemical Substances):
This product is listed in, or complies with, the substance inventory.
Australia ..... : **AIIC** (Australian Inventory of Industrial Chemicals):
This product is listed in, or complies with, the substance inventory.
China..... : **IECSC** (Inventory of Existing Chemical Substances in China):
This product is listed in, or complies with, the substance inventory.

Philippines ..... :	**PICCS** (Philippine Inventory of Chemicals and Chemical Substances): This product is not listed or in compliance with the substance inventory.
United States of America (USA) ..... :	**TSCA** (Toxic Substance Control Act Chemical Substance Inventory): All components of this product are listed as active or are in compliance with the substance inventory.
Taiwan ..... :	**TCSI** (Taiwan Chemical Substance Inventory): This product is listed in, or complies with, the substance inventory. General note: The Taiwanese chemicals regulation requires a phase 1 registration for TCSI-listed or TCSI-compliant substances if imports to Taiwan or manufacturing in Taiwan exceed the trigger quantity of 100 kg/a (for mixtures to be calculated per each ingredient). It is the duty of the importing/manufacturing legal entity to take care of this obligation.
European Economic Area (EEA) ..... :	**REACH** (Regulation (EC) No 1907/2006): General note: the registration obligations for substances imported into the EEA or manufactured within the EEA by the supplier mentioned in section 1 are fulfilled by the said supplier. The registration obligations for substances imported into the EEA by customers or other downstream users must be fulfilled by the latter.
South Korea (Republic of Korea) ..... :	**AREC** (Act on Registration and Evaluation of Chemicals; “K-REACH”): Please approach your regular contact for more detailed information.

16. Other information

16.1 Additional information:

This Safety Data Sheet (SDS) meets the requirements of the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200).This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the date compiled. However, no representation, warranty or guarantee expressed or implied, is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information. Nothing herein shall be construed as a recommendation for uses which infringe valid patents or as extending a license under valid patents. This SDS provides selected regulatory information on this product, including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

Vertical lines in the left-hand margin indicate changes compared with the previous version.

WACKER restricts the use of its products inside the human body or in contact with bodily fluids and mucosa. For further details please review our Health Care Policy on www.wacker.com. WACKER may cancel any delivery obligation(s) if the Health Care Policy is not observed.

16.2 Glossary of Terms:

ACGIH - American Conference of Governmental Industrial Hygienists
DOT - Department of Transportation
hPa - Hectopascals
mPa*s - Milli Pascal-Seconds
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
ppm - Parts per Million
SARA - Superfund Amendments and Reauthorization Act
STEL - Short Term Exposure Limit
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average

Flash point determination methods	**Common name**
ASTM D56	Tagliabue (Tag) closed cup
ASTM D92, DIN 51376, ISO 2592	Cleveland open cup
ASTM D93, DIN 51758, ISO 2719	Pensky-Martens closed cup
ASTM D3278, DIN 55680, ISO 3679	Setaflash or Rapid closed cup
DIN 51755	Abel-Pensky closed cup

16.3 Conversion table:

Pressure: ..... : 1 hPa * 0.75 = 1 mm Hg = 1 torr; 1 bar = 1000 hPa
Viscosity: ..... : 1 mPa*s = 1 centipoise (cP)