

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 10.09.2015

Revision: 10.09.2015

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

- English additional compounds
- 1.1 Product identifier
- Product Name: Environmental Spike Mix, Part Number 5183-4687
- Part Number: 5183-4687
- 1.2 Relevant identified uses of the substance or mixture and uses advised against No further relevant information available.
- Application of the substance / the mixture  
Analytical Chemistry  
A 100mL Solution
- 1.3 Details of the supplier of the safety data sheet
- Manufacturer/Supplier:  
Agilent Technologies Manufacturing GmbH & Co. KG  
Hewlett-Packard-Str. 8  
76337 Waldbronn  
Germany
- Further information obtainable from: product safety department
- 1.4 Emergency telephone number: CHEMTREC®: +(44)-870-8200418

## SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008



GHS05 corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.  
Eye Dam. 1 H318 Causes serious eye damage.

- 2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation.
- Hazard pictograms



GHS05

- Signal word Danger
- Hazard-determining components of labelling:  
nitric acid
- Hazard statements  
Causes severe skin burns and eye damage.
- Precautionary statements  
If medical advice is needed, have product container or label at hand.  
Keep out of reach of children.  
Read label before use.  
Do not breathe dust/fume/gas/mist/vapours/spray.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Immediately call a POISON CENTER/doctor.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.
- 2.3 Other hazards
- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

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**SECTION 3: Composition/information on ingredients**
**3.2 Chemical characterisation: Mixtures**
**Description:** Mixture of substances listed below with nonhazardous additions.

**Dangerous components:**

CAS: 7697-37-2 EINECS: 231-714-2	nitric acid	⚠ Ox. Liq. 3, H272; ⚠ Skin Corr. 1A, H314	5.0%
CAS: 7664-39-3 EINECS: 231-634-8	hydrofluoric acid	⚠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; ⚠ Skin Corr. 1A, H314	0.1%
CAS: 7439-89-6 EINECS: 231-096-4	iron	⚠ Acute Tox. 2, H300	0.1%

**CHEMICAL IDENTIFICATION OF THE SUBSTANCE/PREPARATION**

CAS: 87-69-4 EINECS: 201-766-0	(+)-tartaric acid ⚠ Eye Irrit. 2, H319		0.2%
CAS: 7439-95-4 EINECS: 231-104-6	magnesium ⚠ Pyr. Sol. 1, H250; Water-react. 1, H260		0.1%
CAS: 7440-09-7 EINECS: 231-818-8	Potassium from Potassium nitrate ⚠ Ox. Sol. 2, H272		0.1%
CAS: 7440-23-5 EINECS: 207-838-8	Sodium from Sodium carbonate ⚠ Eye Irrit. 2, H319		0.1%
CAS: 7440-70-2 EINECS: 207-439-9	Calcium from Calcium carbonate ⚠ Eye Dam. 1, H318; ⚠ Skin Irrit. 2, H315; STOT SE 3, H335		0.1%
CAS: 7429-90-5 EINECS: 231-072-3	aluminium ⚠ Pyr. Sol. 1, H250; Water-react. 2, H261		0.01%
CAS: 7439-92-1 EINECS: 215-267-0	Lead from Lead Oxide ⚠ Repr. 1A, H360Df; STOT RE 2, H373; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332		0.01%
CAS: 7439-96-5 EINECS: 231-105-1	manganese		0.01%
CAS: 7439-98-7 EINECS: 231-107-2	molybdenum		0.01%
CAS: 7440-02-0 EINECS: 231-111-4	nickel ⚠ Carc. 2, H351; STOT RE 1, H372; ⚠ Skin Sens. 1, H317		0.01%
CAS: 7440-22-4 EINECS: 231-131-3	silver		0.01%
CAS: 7440-28-0 EINECS: 233-273-1	Thallium from Thallium nitrate ⚠ Acute Tox. 2, H300; Acute Tox. 2, H330; ⚠ STOT RE 2, H373; ⚠ Aquatic Chronic 2, H411		0.01%
CAS: 7440-36-0 EINECS: 231-146-5	antimony		0.01%
CAS: 7440-38-2 EINECS: 231-148-6	arsenic ⚠ Acute Tox. 3, H301; Acute Tox. 3, H331; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410		0.01%
CAS: 7440-39-3 EINECS: 208-167-3	Barium from Barium carbonate ⚠ Acute Tox. 4, H302		0.01%
CAS: 7440-41-7	Beryllium from Beryllium Acetate ⚠ Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 1, H330; ⚠ Carc. 1A, H350		0.01%
CAS: 7440-43-9 EINECS: 231-152-8	cadmium (non-pyrophoric) ⚠ Acute Tox. 2, H330; ⚠ Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361fd; STOT RE 1, H372; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410		0.01%
CAS: 7440-47-3	Chromium from Chromium(III) nitrate nonahydrate ⚠ Ox. Liq. 2, H272; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319		0.01%
CAS: 7440-48-4 EINECS: 231-158-0	cobalt ⚠ Resp. Sens. 1, H334; ⚠ Skin Sens. 1, H317; Aquatic Chronic 4, H413		0.01%
CAS: 7440-50-8 EINECS: 231-159-6	copper		0.01%

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CAS: 7440-61-1 EINECS: 233-266-3	Uranium from Uranyl Nitrate Hexahydrate ☠ Acute Tox. 2, H300; Acute Tox. 2, H330; ☠ STOT RE 2, H373; ☠ Aquatic Chronic 2, H411	0.01%
CAS: 7440-62-2 EINECS: 232-261-3	Vanadium from Ammonium trioxovanadate ☠ Acute Tox. 3, H301; ☠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	0.01%
CAS: 7440-66-6 EINECS: 231-175-3	zinc powder -zinc dust (stabilized) ☠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	0.01%
CAS: 7782-49-2 EINECS: 231-957-4	selenium ☠ Acute Tox. 3, H301; Acute Tox. 3, H331; ☠ STOT RE 2, H373; Aquatic Chronic 4, H413	0.01%
CAS: 7732-18-5 EINECS: 231-791-2	water, distilled, conductivity or of similar purity	94.01%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

#### SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Drink plenty of water and provide fresh air. Call for a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information available.

#### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:** CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

#### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralising agent.  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **6.4 Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

#### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.

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· 7.3 **Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

**7697-37-2 nitric acid**

WEL Short-term value: 2.6 mg/m<sup>3</sup>, 1 ppm

**7664-39-3 hydrofluoric acid**

WEL Short-term value: 2.5 mg/m<sup>3</sup>, 3 ppm  
Long-term value: 1.5 mg/m<sup>3</sup>, 1.8 ppm

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

### SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Liquid

Colour: Colourless

· **Odour:** Odourless

· **Odour threshold:** Not applicable.

· **pH-value:** <1

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· <b>Change in condition</b>	
Melting point/Melting range:	0 °C (32°F)
Boiling point/Boiling range:	100 °C (212°F)
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	Not applicable.
· <b>Ignition temperature:</b>	
Decomposition temperature:	Not applicable.
· <b>Self-igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
Lower:	Not applicable.
Upper:	Not applicable.
· <b>Vapour pressure at 20 °C:</b>	23 hPa
· <b>Density:</b>	1.0 g/mL @ 20 °C
· <b>Relative density</b>	Not applicable.
· <b>Vapour density</b>	Not applicable.
· <b>Evaporation rate</b>	Not applicable.
· <b>Solubility in / Miscibility with water:</b>	Miscible
· <b>Partition coefficient (n-octanol/water):</b>	Not applicable.
· <b>Viscosity:</b>	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· <b>Solvent content:</b>	
Organic solvents:	0.0 %
Water:	94.0 %
VOC (EC)	0.00 %
Solids content:	0.9 %
· <b>9.2 Other information</b>	No further relevant information available.

**SECTION 10: Stability and reactivity**

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

**SECTION 11: Toxicological information**

- **11.1 Information on toxicological effects**
- **Acute toxicity**
- **Primary irritant effect:**
- **Skin corrosion/irritation**  
Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**  
Causes serious eye damage.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

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- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.


**SECTION 12: Ecological information**

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Must not reach sewage water or drainage ditch undiluted or unneutralised.  
Danger to drinking water if even small quantities leak into the ground.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

**SECTION 13: Disposal considerations**

- **13.1 Waste treatment methods**
- **Recommendation** Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**

- |  |   |
|--|---|
| · <b>14.1 UN-Number</b><br>· <b>ADR, IMDG, IATA</b>  | UN3264  |
| · <b>14.2 UN proper shipping name</b><br>· <b>ADR</b><br><br>· <b>IMDG, IATA</b>                     | 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION, HYDROFLUORIC ACID)<br>CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION, HYDROFLUORIC ACID) |
| · <b>14.3 Transport hazard class(es)</b><br>· <b>ADR, IMDG, IATA</b>                                 |   |
|                   |   |
| · <b>Class</b><br>· <b>Label</b>   | 8 Corrosive substances.<br>8  |
| · <b>14.4 Packing group</b><br>· <b>ADR, IMDG, IATA</b>  | III   |
| · <b>14.5 Environmental hazards:</b>   | Not applicable.   |
| · <b>14.6 Special precautions for user</b><br>· <b>Danger code (Kemler):</b><br>· <b>EMS Number:</b> | Warning: Corrosive substances.<br>80<br>F-A,S-B   |

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· Segregation groups	Acids
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Transport category	3
· Tunnel restriction code	E
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION, HYDROFLUORIC ACID), 8, III, (E)

**SECTION 15: Regulatory information**

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- Directive 2012/18/EU
- Named dangerous substances - ANNEX I None of the ingredients is listed.
- 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

- **Relevant phrases**  
H272 May intensify fire; oxidiser.  
H300 Fatal if swallowed.  
H310 Fatal in contact with skin.  
H314 Causes severe skin burns and eye damage.  
H330 Fatal if inhaled.
- **Department issuing SDS:** product safety department
- **Contact:**  
Agilent Technologies Manufacturing GmbH & Co. KG  
0800 603 1000  
pdl-msds\_author@agilent.com
- **Abbreviations and acronyms:**  
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
VOC: Volatile Organic Compounds (USA, EU)  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
Ox. Liq. 3: Oxidising Liquids, Hazard Category 3  
Acute Tox. 2: Acute toxicity, Hazard Category 2  
Acute Tox. 1: Acute toxicity, Hazard Category 1  
Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A  
Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B  
Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1