

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

1 Identification

- **Product identifier**
- **Trade name: Nitroaromatics and Quinones Standard (1X1 mL)**
- **Part number:** NAIM-100-1
- **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 Agilent Technologies, Inc.
 5301 Stevens Creek Blvd.
 Santa Clara, CA 95051 USA
- **Information department:**
 Telephone: 800-227-9770
 e-mail: pdl-msds_author@agilent.com
- **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS06 Skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.



GHS08 Health hazard

Carc. 1B H350 May cause cancer.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Eye Irrit. 2A H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02



GHS06



GHS07



GHS08

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 1)

· **Signal word** Danger

· **Hazard-determining components of labeling:**

acetone

1,3-dinitrobenzene

1,4-naphthoquinone

1,4-dinitrobenzene

hydroquinone

· **Hazard statements**

Highly flammable liquid and vapor.

Harmful if swallowed.

Toxic in contact with skin.

Causes serious eye irritation.

May cause an allergic skin reaction.

May cause cancer.

May cause drowsiness or dizziness.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Take off immediately all contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO₂, powder or water spray.

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 3

Reactivity = 0

(Contd. on page 3)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 2)

· HMIS-ratings (scale 0 - 4)

HEALTH	2	Health = *2
FIRE	3	Fire = 3
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

67-64-1	acetone	97.933%
602-87-9	5-nitroacenaphthene	0.298%
92-93-3	4-nitrobiphenyl	0.253%
130-15-4	1,4-naphthoquinone	0.253%
123-31-9	hydroquinone	0.253%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
Supply fresh air and to be sure call for a doctor.
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. If symptoms persist, consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 3)

- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

- **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.

- **Protective Action Criteria for Chemicals**

- **PAC-1:**

67-64-1	acetone	200 ppm
99-65-0	1,3-dinitrobenzene	3 mg/m ³
92-93-3	4-nitrobiphenyl	6.7 mg/m ³
106-51-4	p-benzoquinone	0.3 ppm
130-15-4	1,4-naphthoquinone	0.57 mg/m ³
123-31-9	hydroquinone	3 mg/m ³

- **PAC-2:**

67-64-1	acetone	3200* ppm
99-65-0	1,3-dinitrobenzene	33 mg/m ³
92-93-3	4-nitrobiphenyl	74 mg/m ³
106-51-4	p-benzoquinone	11 ppm
130-15-4	1,4-naphthoquinone	6.3 mg/m ³
123-31-9	hydroquinone	20 mg/m ³

- **PAC-3:**

67-64-1	acetone	5700* ppm
99-65-0	1,3-dinitrobenzene	200 mg/m ³
92-93-3	4-nitrobiphenyl	440 mg/m ³
106-51-4	p-benzoquinone	68 ppm
130-15-4	1,4-naphthoquinone	38 mg/m ³
123-31-9	hydroquinone	120 mg/m ³

7 Handling and storage

- **Handling:**

- **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 4)

Open and handle receptacle with care.

Prevent formation of aerosols.

· **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:** Store in a cool location.

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:**

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

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

8 Exposure controls/personal protection

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

· **Control parameters**

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

67-64-1 acetone

PEL Long-term value: 2400 mg/m³, 1000 ppm

REL Long-term value: 590 mg/m³, 250 ppm

TLV Short-term value: 1187 mg/m³, 500 ppm

Long-term value: 594 mg/m³, 250 ppm

BEI

92-93-3 4-nitrophenyl

PEL see 29 CFR 1910.1003

REL See Pocket Guide App. A

TLV Skin; L

123-31-9 hydroquinone

PEL Long-term value: 2 mg/m³

REL Ceiling limit value: 2* mg/m³
*15-min

TLV Long-term value: 1 mg/m³

DSEN

· **Ingredients with biological limit values:**

67-64-1 acetone

BEI 50 mg/L

Medium: urine

Time: end of shift

Parameter: Acetone (nonspecific)

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

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 5)

- **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.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

- **Breathing equipment:**

When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.

Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.

- **Protection of hands:**

Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.

- **Material of gloves**

For normal use: nitrile rubber, 11-13 mil thickness

For direct contact with the chemical: butyl rubber, 12-15 mil thickness

- **Penetration time of glove material**

For normal use: nitrile rubber: 1 hour

For direct contact with the chemical: butyl rubber: >4 hours

- **Eye protection:**



Tightly sealed goggles

* 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form: Fluid

Color: Colorless

· **Odor:** Characteristic

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

- **Change in condition**

Melting point/Melting range: -94.7 °C (-138.5 °F)

Boiling point/Boiling range: 55.8-56.6 °C (132.4-133.9 °F)

· **Flash point:** -17 °C (1.4 °F)

· **Flammability (solid, gaseous):** Not applicable.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 6)

· Ignition temperature:	465 °C (869 °F)
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	2.6 Vol %
Upper:	13 Vol %
· Vapor pressure at 20 °C (68 °F):	245.3 hPa (184 mm Hg)
· Density at 20 °C (68 °F):	0.791 g/cm ³ (6.6009 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic at 20 °C (68 °F):	32 mPas
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	97.9 %
VOC content:	0.00 %
	0.0 g/l / 0.00 lb/gal
Solids content:	1.8 %
· Other information	No further relevant information available.

10 Stability and reactivity

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

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 7)

11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)		
Oral	LD50	926 mg/kg
Dermal	LD50	>654 mg/kg
Inhalative	LC50/4 h	62.5 mg/L

67-64-1 acetone		
Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	20,000 mg/kg (rabbit)

99-65-0 1,3-dinitrobenzene		
Oral	LD50	83 mg/kg (rat)

130-15-4 1,4-naphthoquinone		
Oral	LD50	190 mg/kg (rat)
Inhalative	LC50/4 h	46 mg/L (rat)

123-31-9 hydroquinone		
Oral	LD50	302 mg/kg (rat)
Dermal	LD50	>900 mg/kg (rat)

- **Primary irritant effect:**

- **on the skin:** No irritant effect.

- **on the eye:** Irritating effect.

- **Sensitization:** Sensitization possible through skin contact.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Toxic

Harmful

Irritant

- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
602-87-9	5-nitroacenaphthene	2B
92-93-3	4-nitrobiphenyl	3
106-51-4	p-benzoquinone	3
123-31-9	hydroquinone	3

· NTP (National Toxicology Program)		
130-15-4	1,4-naphthoquinone	R

· OSHA-Ca (Occupational Safety & Health Administration)		
92-93-3	4-nitrobiphenyl	

US

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 8)


12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 Water hazard class 3 (Self-assessment): extremely hazardous for water
 Do not allow product to reach ground water, water course or sewage system, even in small quantities.
 Danger to drinking water if even extremely small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

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

14 Transport information

· Not Regulated, De minimus Quantities	-
· UN-Number · DOT, IMDG, IATA	UN1090
· UN proper shipping name · DOT · IMDG, IATA	Acetone solution ACETONE solution
· Transport hazard class(es) · DOT, IMDG, IATA	<div style="text-align: center;">  </div>
· Class · Label	3 Flammable liquids 3
· Packing group · DOT, IMDG, IATA	II

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 9)

· Environmental hazards:	Not applicable.
· Special precautions for user	Warning: Flammable liquids
· Danger code (Kemler):	33
· EMS Number:	F-E,S-D
· Stowage Category	B
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1090 ACETONE SOLUTION, 3, II

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

Section 355 (extremely hazardous substances):

123-31-9	hydroquinone
----------	--------------

Section 313 (Specific toxic chemical listings):

99-65-0	1,3-dinitrobenzene
100-25-4	1,4-dinitrobenzene
528-29-0	1,2-dinitrobenzene
92-93-3	4-nitrobiphenyl
106-51-4	p-benzoquinone
123-31-9	hydroquinone

TSCA (Toxic Substances Control Act):

67-64-1	acetone
602-87-9	5-nitroacenaphthene
99-65-0	1,3-dinitrobenzene
100-25-4	1,4-dinitrobenzene
92-93-3	4-nitrobiphenyl
106-51-4	p-benzoquinone
130-15-4	1,4-naphthoquinone
123-31-9	hydroquinone

(Contd. on page 11)

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 10)

· TSCA new (21st Century Act): (Substances not listed)

602-87-9 5-nitroacenaphthene

92-93-3 4-nitrobiphenyl

· Proposition 65
· Chemicals known to cause cancer:

602-87-9 5-nitroacenaphthene

92-93-3 4-nitrobiphenyl

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

99-65-0 1,3-dinitrobenzene

100-25-4 1,4-dinitrobenzene

528-29-0 1,2-dinitrobenzene

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories
· EPA (Environmental Protection Agency)

67-64-1 acetone

I

99-65-0 1,3-dinitrobenzene

D

100-25-4 1,4-dinitrobenzene

D

528-29-0 1,2-dinitrobenzene

D

· TLV (Threshold Limit Value established by ACGIH)

67-64-1 acetone

A4

92-93-3 4-nitrobiphenyl

A2

123-31-9 hydroquinone

A3

· NIOSH-Ca (National Institute for Occupational Safety and Health)

92-93-3 4-nitrobiphenyl

· National regulations:
· Additional classification according to Decree on Hazardous Materials:

Carcinogenic hazardous material group III (dangerous).

· Information about limitation of use:

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.

Exceptions can be made by the authorities in certain cases.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

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.

· Date of preparation / last revision 04/01/2019 / 1

· 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)

(Contd. on page 12)

Safety Data Sheet
acc. to OSHA HCS

Printing date 04/01/2019

Version Number 2

Reviewed on 04/01/2019

Trade name: Nitroaromatics and Quinones Standard (1X1 mL)

(Contd. of page 11)

IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
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)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 1B: Carcinogenicity – Category 1B
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

*** Data compared to the previous version altered.**

US