

TECHNICAL DATA SHEET

Nitric Acid ACS 69% - 55 Gallon Drum

ACS Grade · 69%

CAS NUMBER

7697-37-2

ALLIANCE CODE

nitric-acid-acs-69-55-gallon-drum

GENERATED

2026-08-31

REVISION

1.5

REVIEWED

2026-07-17 · Andre Taki

IDENTITY & COMPOSITION

PRODUCT NAME

Nitric Acid ACS 69% – 55 Gallon Drum

ALLIANCE CODE

nitric-acid-acs-69-55-gallon-drum

GRADE

ACS Grade

CONCENTRATION

69%

CAS NUMBER

7697-37-2 [PubChem](#)

FORMULA

HNO3 [PubChem](#)

MOLECULAR WEIGHT

63.013 [PubChem](#)

PRODUCT TYPE

solution

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (HNO3)	68.0–70.0 %	69.0 %	Acidimetry	ACS Reagent Chemicals
Arsenic (As)	0.000001 % max	0.0000001 %	—	ACS Reagent Chemicals
Chloride (Cl)	0.00005% max	0.00001 %	—	Supplier specification

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Heavy metals (as Pb)	0.00002% max	0.000002 %	—	Supplier specification
Iron (Fe)	Max 0.2 ppm	0.03 ppm	—	ACS Reagent Chemicals
Nitrite (NO ₂)	0.0005%	0.0001 %	—	ACS Reagent Chemicals
Reducing substances to KMnO ₄	passes test	Passes test	—	ACS Reagent Chemicals
Phosphate (PO ₄)	0.0001 %	0.00001 %	—	ACS Reagent Chemicals
Residue on ignition (as SO ₄)	0.0005 % max	0.0001 %	—	Supplier specification
Sulfate (SO ₄)	0.0001% max	0.00002 %	—	Supplier specification
Nickel (Ni)	Max 0.000005 %	0.0000005 %	ICP-MS	Interpreted
Mercury (Hg)	Max 0.0000005 %	0.0000000 2 %	Cold vapour AAS	Interpreted

Specification values are guaranteed limits. Typical values are representative of production lots and are not guaranteed. Lot-specific certificates of analysis ship with every order.

AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
THIS GRADE ACS Grade	69%	—	current
ACS Grade	70%	—	nitric-acid-70-acs-grade-low-particle

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
Technical	70%	—	nitric-acid-70-technical-grade
Technical	69%	—	nitric-acid-69-technical-grade
Technical	65%	—	nitric-acid-65-technical-grade
Technical	40%	—	nitric-acid-40
Technical	30%	—	nitric-acid-30
Technical	25%	—	nitric-acid-25
Technical	20%	—	nitric-acid-20
Reagent	5%	—	nitric-acid-5

Typical assay shown is the rolling-window mean from the sibling product's most recent lots. Grade selection drives downstream end-use — verify the sibling grade matches your specification before substitution.

PHYSICAL & CHEMICAL PROPERTIES

PROPERTY	VALUE	SOURCE
Appearance	Colorless and free from suspended matter or sediment	ACS Reagent Chemicals
Form	Liquid	Published reference
Color	10 max	Supplier specification
Odor	Characteristic choking odor	Published reference
Specific Gravity (20 °C)	1.41	Published reference
Density	1.405 – 1.415	ACS Reagent Chemicals
Boiling Point	Not characterized for the 69% solution	Published reference
Melting Point	Not characterized for the 69% solution	Published reference
Vapor Pressure	48 mmHg (NIOSH, 2024)	Published reference
Solubility (water)	Miscible (NIOSH, 2024)	Published reference

Strong acid — density and vapor-pressure values shown are at 20 °C; values shift markedly with concentration and temperature. Reference concentration-temperature curves before specifying equipment.

MATERIALS OF CONSTRUCTION

MATERIAL	RATING	CONDITIONS	SOURCE
PTFE (Teflon)	Compatible	recommended as a cap for bottles of concentrated nitric acid	itwreagents.com
chromium	Compatible	hot nitric acid; protective oxide layer forms (no concentration stated)	itwreagents.com

MATERIAL	RATING	CONDITIONS	SOURCE
platinum (also gold, iridium)	Compatible	nitric acid alone; attacked by aqua regia (nitric plus hydrochloric acid). No concentration stated.	itwreagents.com
most metals (general)	Not recommended	no concentration stated; reaction evolves toxic nitrogen dioxide	itwreagents.com
PTFE (Teflon) bottle cap	Compatible	concentrated nitric acid; concentration and temperature not stated	itwreagents.com

Compatibility is drawn from published manufacturer and supplier documentation for this product; each rating is sourced. Confirm against your specific duty cycle before equipment selection.

REGULATORY & TRANSPORT

DOT / 49 CFR

UN NUMBER

UN2031 **49 CFR 172.101**

PACKING GROUP

II **Adjudicated**

HAZARD CLASS

8 **Adjudicated**

PROPER SHIPPING NAME

Nitric acid, other than red fuming, with at least 65 percent, but not more than 70 percent nitric acid

Adjudicated

GHS / OSHA HAZCOM 2012

SIGNAL WORD

Danger **Adjudicated**

H-CODES (HAZARD STATEMENTS)

EUH071, H272, H290, H314, H331

Adjudicated

P-CODES (PRECAUTIONARY STATEMENTS)

P210, P220, P234, P260, P264, P271, P280, P284, P301+P330+P331, P303+P361+P353, P304+P340, P305+P351+P338, P310, P311, P320, P321, P363, P370+P378, P403+P233, P405, P501

Adjudicated

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)

2 ppm TWA **OSHA 29 CFR 1910.1000**

ACGIH TLV

— **no canonical**

NIOSH REL

2 ppm TWA / 4 ppm STEL **NIOSH Pocket Guide**

NIOSH IDLH

25 ppm **NIOSH Pocket Guide**

Transport descriptions reflect 49 CFR 172.101 lookup at time of publication. Sourced data: ECHA CLP Annex VI for harmonised classifications, NIOSH Pocket Guide for REL/IDLH, OSHA Z-Tables for PEL. Always verify against the latest regulatory text before shipment-critical decisions.

CATALOG EQUIVALENTS CROSS-REFERENCE VS MAJOR CHEMICAL SUPPLIERS

SIGMA-ALDRICH

SKU	GRADE	CONC.	MATCH	NOTES
438073	ACS Reagent	70%	Exact	ACS Reagent fuming-free 70%

Cross-references are informational. Confirm against the manufacturer's current specification before substitution. Competitor trademarks are property of their respective owners.

APPLICATIONS

Raw material in the chemical industry for producing nitrates and fertilizers, and as separating water for parting gold and silver

[itwreagents.com](https://www.itwreagents.com)

Used in the production of fertilizers, dyes and explosives [itwreagents.com](https://www.itwreagents.com)

Used to produce soluble metal nitrates [itwreagents.com](https://www.itwreagents.com)

Analytical detection of aromatic amino acids and proteins via the xanthoprotein reaction

[itwreagents.com](https://www.itwreagents.com)

Use as an analytical reagent. [itwreagents.com](https://www.itwreagents.com)

Applications are drawn from published manufacturer and supplier documentation; each is sourced. Suitability for a specific use is the buyer's to confirm.

STORAGE & HANDLING

RECOMMENDED STORAGE

Store away from direct light. [itwreagents.com](https://www.itwreagents.com)

INCOMPATIBILITIES

Bases, active metals (aluminium, zinc), cyanides, sulfides, oxidizing agents. Reacts violently with organic anhydrides.

Class-level guidance — not product-specific; the SDS controls.

For full hazard, PPE, and emergency response guidance, refer to the Safety Data Sheet (SDS) for this product. The SDS controls in all cases where guidance differs.

HANDLING PRECAUTIONS

Use full PPE including face shield, acid-resistant gloves and apron. Add acid to water slowly with stirring; never reverse. Ventilation required.

Class-level guidance — not product-specific; the SDS controls.

SHELF LIFE

Consult Technical Services for product-specific shelf life

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

UN2031, Nitric acid, other than red fuming, with at least 65 percent, but not more than 70 percent nitric acid, 8, PG II

Sourced from 49 CFR 172.101. Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS 60	PLACARD Corrosive	PACKING GROUP PG II
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REVISION HISTORY

Last reviewed 2026-07-17 by Andre Taki, DOT Hazmat Specialist.

VERSION	DATE	CHANGE	TRIGGER
1.5	2026-08-27	Canonical data updated: 1 field changed via the provenance/adjudication pipeline. oel_niosh_rel · canonical change (coa.data_provenance / adjudication)	canonical_change
1.4	2026-08-05	Canonical data updated: 4 fields changed via the provenance/adjudication pipeline. - hazardClass · canonical change (coa.data_provenance / adjudication) - packingGroup · canonical change (coa.data_provenance / adjudication) - signalWord · canonical change (coa.data_provenance / adjudication) - unNumber · canonical change (coa.data_provenance / adjudication)	canonical_change
1.3	2026-07-22	Canonical data updated: 1 field changed via the provenance/adjudication pipeline. dotProperShippingName · canonical change (coa.data_provenance / adjudication)	canonical_change

VERSION	DATE	CHANGE	TRIGGER
1.1	2026-07-17	Canonical data re-verified: 6 fields updated against independent vendor SDSs, CLP Annex VI, 49 CFR, and OSHA HazCom 2024 (GHS classification, hazard/precautionary codes, signal word, physical properties as applicable). - countryOfOrigin · canonical adjudication / reground (coa.data_provenance) - dotSubsidiaryHazardClass · canonical adjudication / reground (coa.data_provenance) - ghsClassification · canonical adjudication / reground (coa.data_provenance) - hazard_p_codes · canonical adjudication / reground (coa.data_provenance) - hsCode · canonical adjudication / reground (coa.data_provenance) - physicalProperties · canonical adjudication / reground (coa.data_provenance)	canonical_change
1.2	2026-07-17	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. - ghsClassification · canonical change (coa.data_provenance / adjudication) - hazard_h_codes · canonical change (coa.data_provenance / adjudication) - hazard_p_codes · canonical change (coa.data_provenance / adjudication)	canonical_change
1.0	2026-05-20	Initial URL—first TDS published from canonical chemistry registry.	initial

This Technical Data Sheet is provided for technical reference. The Safety Data Sheet (SDS) controls in all cases where guidance differs. Values reflect Alliance Chemical canonical data at time of generation; subsequent revisions are recorded in the Revision History above.