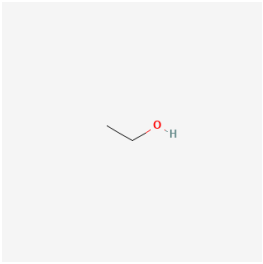
Technical Data Sheet

Denatured Alcohol 190 Proof 3A Technical Grade

Technical · 95%

Alliance Code	Revised	Revision
denatured-alcohol-190-proof-3a	2026-11-23	1.9

CAS number 64-17-5	UN number UN1987	Hazard class · packing group 3 · PG II
 Structure · PubChem	Grade Technical · 95%	Signal word **Danger**
Hazards Flammable · Irritant / harmful · Health hazard · H225 H302 H319 H371		
Proper shipping name Alcohols, n.o.s.		

IDENTITY & COMPOSITION

PRODUCT NAME
Denatured Alcohol 190 Proof 3A Technical Grade

ALLIANCE CODE
denatured-alcohol-190-proof-3a

GRADE
Technical

CONCENTRATION
95%

CAS NUMBER
64-17-5 PubChem

FORMULA
C2H5OH PubChem

MOLECULAR WEIGHT
46.07 PubChem

PRODUCT TYPE
Mixture

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Acidity (as acetic acid)	0.0025% max.	—	Not stated	Interpreted
Color (Pt-Co)	10 Max.	—	Not stated	Interpreted
Denaturant formula compliance (SDA Formula No. 3-A)	Five gallons of denaturant per 100 gallons of alcohol	—	—	Interpreted
Ethanol (190 Proof)	95.24% (v/v) +/- 0.48%	—	—	Interpreted
Methanol (denaturant)	4.76% (v/v) +/- 0.24%	—	—	Interpreted
Weight per gallon in air	6.79 - 6.81 lbs @ 15.56 °C (60 °F)	—	Calculated from density, ASTM D4052	Interpreted
Non-volatile residue	2.5 mg/100 ml, max.	—	Gravimetric, evaporation to dryness	Interpreted

Values are reproduced from the current product reference. Source labels do not by themselves establish a supplier guarantee or a test result for your lot. Confirm applicable acceptance limits and request lot-specific documentation.

AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
THIS GRADE Technical	95%	—	current
Technical	95%	—	denatured-alcohol-190-proof-3c
Technical	—	—	denatured-alcohol-200-proof-3a
Technical	—	—	denatured-alcohol-200-proof-3c

Typical assay for each grade is the average of its recent lots. Confirm a grade meets your specification before substituting it.

PHYSICAL & CHEMICAL PROPERTIES

PROPERTY	VALUE	SOURCE
Appearance	Clear, colorless liquid	Adjudicated
Form	Liquid	Published reference
Odor	Alcohol-like odor	Adjudicated
Specific Gravity	0.80–0.81 at 20 °C (water = 1)	Adjudicated
Density	0.79 g/cm^3 at 68 °F (USCG, 1999)	Published reference
Boiling Point	About 78 °C (172–173 °F) (ethanol)	Adjudicated
Melting Point	About -114 °C (-173 °F) (ethanol)	Adjudicated
Flash Point	13–16 °C (55–61 °F), closed cup	Adjudicated
Vapor Pressure	43–45 mmHg at 20 °C	Adjudicated
Vapor Density	1.6 (air = 1)	Adjudicated
Solubility (water)	Completely miscible with water	Adjudicated
Viscosity	About 1.1 mm^2/s at 40 °C	Adjudicated

Polar solvent — purity vs. intended end-use (electronics, pharma, general industrial) is the dominant grade consideration. See application guidance for grade selection.

MATERIALS OF CONSTRUCTION SERVICE ENVELOPE ≈ 95%

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
Buna-N (NBR) Elastomer	Fair	60	Acceptable for alcohols; poor for ketones.	Parker O-ring Chemical Compatibility
EPDM Elastomer	Fair	—	Good for alcohols, poor for esters	Cole-Parmer Chemical Compatibility

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
Viton (FKM) Elastomer	Fair	80	Swells in acetone and esters; avoid for those.	Parker O-ring Chemical Compatibility
FFKM (Kalrez) Fluoropolymer	Excellent	200	Premium ester / ketone sealing	Cole-Parmer Chemical Compatibility
PTFE Fluoropolymer	Excellent	200	Universal solvent compatibility.	Cole-Parmer Chemical Compatibility
Borosilicate Glass Glass Ceramic	Excellent	100	Universally inert.	Cole-Parmer Chemical Compatibility
316L Stainless Steel Metal	Excellent	80	Inert; preferred for high-purity solvent service.	Cole-Parmer Chemical Compatibility
Aluminium Metal	Good	40	Acceptable; avoid prolonged wet contact	Cole-Parmer Chemical Compatibility
Carbon Steel Metal	Fair	50	Trace moisture causes rust; flash-rust prevention required.	Cole-Parmer Chemical Compatibility
HDPE Thermoplastic	Fair	40	Swells with many polar solvents; verify per solvent.	Cole-Parmer Chemical Compatibility
PP Thermoplastic	Good	50	Acceptable but watch swelling with esters	Cole-Parmer Chemical Compatibility
PVC Thermoplastic	Fair	25	Esters soften PVC; avoid for esters	Cole-Parmer Chemical Compatibility

Ratings reflect the service envelope (concentration × temperature) shown. Always confirm against your specific duty cycle and contact-time before equipment selection. The most cautious rating across overlapping references is shown.

REGULATORY & TRANSPORT

DOT / 49 CFR

UN NUMBER

UN1987 Adjudicated

HAZARD CLASS

3 Adjudicated

PACKING GROUP

II Adjudicated

PROPER SHIPPING NAME

Alcohols, n.o.s. Adjudicated

GHS / OSHA HCS 2024

SIGNAL WORD

Danger Adjudicated

H-CODES (HAZARD STATEMENTS)

H225, H302, H319, H371 Adjudicated

P-CODES (PRECAUTIONARY STATEMENTS)

P210, P233, P240, P241, P242, P243, P260, P264, P270, P280, P301+P312, P303+P361+P353, P305+P351+P338, P308+P311, P337+P313, P370+P378, P403+P235, P405, P501

Adjudicated

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)

1000 ppm TWA (CAS 64-17-5); 200 ppm TWA (CAS 67-56-1)

Adjudicated

ACGIH TLV

1000 ppm STEL (CAS 64-17-5); 200 ppm TWA / 250 ppm STEL, Skin (CAS 67-56-1)

Adjudicated

NIOSH REL

1000 ppm TWA (CAS 64-17-5); 200 ppm TWA / 250 ppm STEL (CAS 67-56-1)

Adjudicated

NIOSH IDLH

3300 ppm (CAS 64-17-5); 6000 ppm (CAS 67-56-1)

Adjudicated

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

HEALTH & FIRE HAZARD

ACUTE TOXICOLOGY

LD_{50} ORAL

Ethanol 7,060–10,470 mg/kg (rat); methanol 5,600–6,200 mg/kg (rat), but humans are far more sensitive — methanol causes blindness and death at much lower doses. ATE for the mixture about 2,100 mg/kg (methanol 100 mg/kg acute-toxicity estimate).

Adjudicated

LD_{50} DERMAL (RABBIT)

Ethanol > 2,000 mg/kg; methanol ATE 300 mg/kg (ATE for the mixture > 6,000 mg/kg)

Adjudicated

LC_{50} INHALATION (RAT, 4 H)

Ethanol 124.7 mg/L (vapor); methanol ATE 3 mg/L (ATE for the mixture > 20 mg/L)

Adjudicated

Acute toxicology values from SDS Section 11 or NIOSH RTECS.

APPLICATIONS

TTB-authorized as a solvent for cellulose and synthetic resin coatings, other coatings, and cellulose and non-cellulose plastics including resins.

law.cornell.edu

TTB-authorized as a proprietary solvent and in polishes, inks (including meat branding inks), wood stains, shampoos, and soap and bath preparations.

law.cornell.edu

TTB-authorized in disinfectants, insecticides, fungicides and other biocides, embalming fluids, sterilizing and preserving solutions, industrial detergents and soaps, and cleaning solutions.

law.cornell.edu

TTB-authorized use list includes processing pectin, other food products, crude drugs, vitamins, antibiotics and medicinal chemicals — this is a formula-scoped TTB authorization, not a food-grade or pharmaceutical-grade claim.

law.cornell.edu

TTB-authorized as a raw material for ethylamines, dyes and intermediates, drugs and medicinal chemicals, organo-silicone products, other chemicals, and synthetic resins.

law.cornell.edu

TTB-authorized as a fuel, including automobile, airplane, rocket and jet fuels, proprietary heating fuels, and other fuel uses.

law.cornell.edu

TTB-authorized as a fluid in scientific instruments, brake fluids, cutting oils, and refrigerating uses.

law.cornell.edu

TTB-authorized for general laboratory and experimental use (own use only), laboratory reagents for sale, and product development and pilot plant uses.

law.cornell.edu

The manufacturer's specification sheet for SDA 3A 190 Proof states the product is for further commercial manufacturing, laboratory use, or research.

greenfield.com

Manufacturer's spec sheet for SDA 3A 190 Proof lists use as a raw material for ethylamines, dyes and intermediates, drugs and medicinal chemicals, organo-silicone products, and synthetic resins.

greenfield.com

Solvent for coatings, plastics, photographic materials, explosives, soldering flux, adhesives, polishes, inks, and stains.

greenfield.com

Automobile, airplane, rocket, jet, heating, and other fuel uses. greenfield.com

Laboratory, experimental, product-development, pilot-plant, and specialized uses. greenfield.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

Keep containers tightly closed in a cool, dry, well-ventilated flammables area away from heat, sparks, open flame and direct sunlight. Keep in fireproof surroundings separated from strong oxidizers. Do not store above 49 °C (120 °F). Ground and bond containers when transferring.

Adjudicated

HANDLING PRECAUTIONS

Use chemical-resistant gloves and splash goggles. Bond and ground during transfer to prevent static accumulation. Eliminate ignition sources within vapor envelope.

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

INCOMPATIBILITIES

Strong oxidizing agents (peroxides, nitric acid, perchlorates, hypochlorites); strong acids; alkali metals; ammonia; acid anhydrides.

Adjudicated

SHELF LIFE

37 months from date of manufacture in sealed, original packaging

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.

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

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UN1987, Alcohols, n.o.s., 3, PG II
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Sourced from 49 CFR 172.101. Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS	PLACARD	PACKING GROUP
70	Flammable Liquid	PG II

REVISION HISTORY

Last reviewed 2026-11-23 by Andre Taki, Chief Commercial Officer, DOT Hazmat–certified (49 CFR 172.704).

VERSION	DATE	CHANGE	TRIGGER
1.9	2026-11-23	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

VERSION	DATE	CHANGE	TRIGGER
1.8	2026-10-13	Canonical data updated: 1 field changed via the provenance/adjudication pipeline. • storage_precautions · canonical change (coa.data_provenance / adjudication)	canonical change
1.7	2026-10-07	Canonical data updated: 20 fields changed via the provenance/adjudication pipeline. • synonyms · canonical change (coa.data_provenance / adjudication) • recommended_use · canonical change (coa.data_provenance / adjudication) • restrictions_on_use · canonical change (coa.data_provenance / adjudication) • odor · canonical change (coa.data_provenance / adjudication) • flashPoint · canonical change (coa.data_provenance / adjudication) • boilingPoint · canonical change (coa.data_provenance / adjudication) • meltingPoint · canonical change (coa.data_provenance / adjudication) • vaporPressure · canonical change (coa.data_provenance / adjudication) • vaporDensity · canonical change (coa.data_provenance / adjudication) • solubility · canonical change (coa.data_provenance / adjudication) • viscosity · canonical change (coa.data_provenance / adjudication) • explosiveLimits · canonical change (coa.data_provenance / adjudication) • oel_acgih_tlv · canonical change (coa.data_provenance / adjudication) • incompatible_materials · canonical change (coa.data_provenance / adjudication) • conditions_to_avoid · canonical change (coa.data_provenance / adjudication) • hazardous_decomposition_products · canonical change (coa.data_provenance / adjudication) • rcra_waste_codes · canonical change (coa.data_provenance / adjudication) • cercla_rq · canonical change (coa.data_provenance / adjudication) • dot_transport_note · canonical change (coa.data_provenance / adjudication) • specificGravity · canonical change (coa.data_provenance / adjudication)	canonical change
1.6	2026-10-05	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. • oel_osha_pel · canonical change (coa.data_provenance / adjudication) • oel_niosh_rel · canonical change (coa.data_provenance / adjudication) • oel_idlh · canonical change (coa.data_provenance / adjudication)	canonical change
1.5	2026-09-30	Canonical data updated: 4 fields changed via the provenance/adjudication pipeline. • boilingPoint · canonical change (coa.data_provenance / adjudication) • meltingPoint · canonical change (coa.data_provenance / adjudication) • flashPoint · canonical change (coa.data_provenance / adjudication) • appearance · canonical change (coa.data_provenance / adjudication)	canonical change

VERSION	DATE	CHANGE	TRIGGER
1.4	2026-09-16	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
1.3	2026-08-05	Canonical data updated: 3 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)	canonical change
1.2	2026-07-22	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. • dotSubsidiaryHazardClass · canonical change (coa.data_provenance / adjudication) • unNumber · canonical change (coa.data_provenance / adjudication) • dotProperShippingName · canonical change (coa.data_provenance / adjudication)	canonical change
1.1	2026-07-17	Canonical data re-verified: 5 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) • ghsClassification · canonical adjudication / reground (coa.data_provenance) • hazard_h_codes · canonical adjudication / reground (coa.data_provenance) • hazard_p_codes · canonical adjudication / reground (coa.data_provenance) • hsCode · canonical adjudication / reground (coa.data_provenance)	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.