

TECHNICAL DATA SHEET

Sodium Hypochlorite 12.5%

Technical · 12.5%

CAS NUMBER	ALLIANCE CODE	GENERATED
7681-52-9	sodium-hypochlorite-12-5	2026-09-01
REVISION	REVIEWED	
1.5	2026-07-17 · Andre Taki	

IDENTITY & COMPOSITION

PRODUCT NAME	ALLIANCE CODE
Sodium Hypochlorite 12.5%	sodium-hypochlorite-12-5
GRADE	CONCENTRATION
Technical	12.5%
CAS NUMBER	FORMULA
7681-52-9 PubChem	ClNaO PubChem
MOLECULAR WEIGHT	PRODUCT TYPE
74.44 PubChem	solution

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (NaOCl)	12.5 – 15.6 wt%	12.5 wt%	—	Supplier specification
Total Alkalinity	0.1 – 1.5 wt%	0.80 wt%	—	Supplier specification
Bromate (12.5% Basis)	39 ppm Max	3.4 ppm	—	Supplier specification
Chlorate (12.5% Basis)	3,570 ppm Max	1010 ppm	—	Supplier specification

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Cobalt (Co)	0.1 ppm Max	0.012 ppm	—	Supplier specification
Excess Sodium Carbonate (wt.%)	0.25 max	0.05	—	Supplier specification
Insolubles	0.15 wt% Max	0.015 wt%	—	Supplier specification
Sodium Hydroxide (NaOH)	0.2 – 0.6	0.4	—	Supplier specification
Sodium Hypochlorite (NaOCl) (wt. %)	12.5 – 13.2	12.85	—	Supplier specification
Copper	< 0.5 ppm	0.05 ppm	—	Supplier specification
Available Chlorine (Cl ₂)	11.9 – 12.6	12.25	—	Supplier specification
Iron	< 1.0 ppm	0.15 ppm	—	Supplier specification
Nickel	< 0.5 ppm	0.08 ppm	—	Supplier specification
Chlorate (ClO ₃)	3000 Max mg/L	1200 mg/L	Ion chromatography, EPA 300.1	Interpreted
excess sodium hydroxide	0.2 – 0.6 %	0.4 %	—	Supplier specification

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 Technical	12.5%	—	current
Technical	8.25%	—	sodium-hypochlorite-8-25
Technical	6%	—	sodium-hypochlorite-6
Technical	5.25%	—	sodium-hypochlorite-5-25
Technical	3%	—	sodium-hypochlorite-3
Technical	2%	—	sodium-hypochlorite-2
Technical	1%	—	sodium-hypochlorite-1
Technical	—	—	sodium-hypochlorite-10

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

One or more physical-property values are temporarily suppressed pending verification against vendor COA data. For complete properties refer to the Safety Data Sheet (SDS) or contact sales@alliancechemical.com.

PROPERTY	VALUE	SOURCE
Form	Liquid solution	Published reference
Color	Clear/Greenish Yellow	Supplier specification
Odor	Disagreeable, sweetish odor	Published reference
pH	12.5 – 13.5	Interpreted
Specific Gravity (20 °C)	1.18 – 1.24	Supplier specification
Density	1.19 (12.5% w/w aqueous solution, 20 °C)	Published reference
Boiling Point	Not characterized for the 12.5% solution	Published reference
Melting Point	Not characterized for the 12.5% solution	Published reference
Flash Point	null	Published reference
Vapor Pressure	Vapor pressure, kPa at 20 °C: 2 – 2.5	Published reference
Solubility (water)	29.3 g/100 g (0 °C) in water	Published reference

Oxidizer — decomposition rate and gas-evolution data may apply. Consult the SDS for material-of-construction guidance under shipping and storage conditions.

MATERIALS OF CONSTRUCTION SERVICE ENVELOPE ≈ 12.5%

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
Buna-N (NBR) Elastomer	Not recommended	—	Rapid degradation; never use with oxidizers.	Parker O-ring Chemical Compatibility

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
EPDM Elastomer	Fair	60	Service below 35 %; swelling and embrittlement above.	Parker O-ring Chemical Compatibility
Viton (FKM) Elastomer	Poor	—	Use EPDM or PTFE for sealing	Solvay H2O2 Safety & Handling
PTFE Fluoropolymer	Excellent	200	Universal compatibility; preferred lining material.	Cole-Parmer Chemical Compatibility
PVDF (Kynar) Fluoropolymer	Excellent	100	Standard for high-purity peroxide service.	Solvay H2O2 Materials of Construction
Borosilicate Glass Glass Ceramic	Excellent	100	Inert to all oxidizers within normal service temperatures.	Cole-Parmer Chemical Compatibility
Concrete (untreated) Glass Ceramic	Not recommended	—	Reactive; line with HDPE/FRP	Solvay H2O2 Safety & Handling
304 Stainless Steel Metal	Fair	40	Surface oxidation at higher concentrations; passivate before service.	Cole-Parmer Chemical Compatibility
316L Stainless Steel Metal	Good	60	Passive layer stable; avoid prolonged service above 60 °C.	Solvay H2O2 Materials of Construction
Aluminium 1100/3003 Metal	Good	40	Limit to dilute service	Solvay H2O2 Safety & Handling
Brass Metal	Not recommended	—	Copper-induced decomposition	Solvay H2O2 Safety & Handling
Carbon Steel Metal	Not recommended	—	Rapid corrosion; never use with oxidizers.	Cole-Parmer Chemical Compatibility

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
Copper Metal	Not recommen ded	—	Catalytic decomposition; severe	Solvay H2O2 Safety & Handling
CPVC Thermoplastic	Good	60	Acceptable to 60 °C	Solvay H2O2 Safety & Handling
HDPE Thermoplastic	Good	25	Good below 25 °C; reaction with peroxides accelerates at higher T.	Cole-Parmer Chemical Compatibility
Polypropylene Thermoplastic	Good	25	Service below 35 °C at ambient; avoid above 25 °C.	Cole-Parmer Chemical Compatibility
PVC Thermoplastic	Fair	40	Embrittlement risk above 40 °C	Solvay H2O2 Safety & Handling

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

UN1791 **Adjudicated**

PACKING GROUP

III **Adjudicated**

HAZARD CLASS

8 **Adjudicated**

PROPER SHIPPING NAME

Hypochlorite solutions **Adjudicated**

GHS / OSHA HAZCOM 2012

SIGNAL WORD

Danger **Adjudicated**

H-CODES (HAZARD STATEMENTS)

EUH031, H290, H314, H400, H410

Adjudicated

P-CODES (PRECAUTIONARY STATEMENTS)

P260, P264, P273, P280, P301+P330+P331,
P303+P361+P353, P304+P340,
P305+P351+P338, P310, P313, P321, P363,
P391, P405, P501

Adjudicated

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)

— **no canonical**

ACGIH TLV

— **no canonical**

NIOSH REL

— **no canonical**

NIOSH IDLH

— **no canonical**

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.

APPLICATION GUIDANCE

Sodium Hypochlorite 12.5% (Technical) is supplied for applications where controlled, selective oxidation is required. Grade selection drives the choice between bulk industrial oxidation, electronics/semiconductor cleaning, and pharmaceutical-grade disinfection.

- Pulp and textile bleaching
- Wastewater treatment and odor control
- Etching and surface cleaning (electronics-grade only)
- Disinfection and sterilization (food/pharma-grade only)
- Chemical synthesis and polymerization initiation

Materials of construction must be rated for the concentration and temperature in service. Avoid contact with reducing agents, transition metals, and organic combustibles.

STORAGE & HANDLING

RECOMMENDED STORAGE

Cool, well-ventilated area, away from heat, sunlight, and combustibles. Vented containers only — pressure may develop from slow decomposition. Original sealed containers; segregate from organics, metals (especially copper, iron, manganese), and reducing agents.

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

INCOMPATIBILITIES

Combustible materials, organic compounds, reducing agents, transition metal salts (catalytic decomposition), strong bases.

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

HANDLING PRECAUTIONS

Use PPE including face shield, chemical-resistant gloves, and apron. Avoid contamination — never return unused material to the original container. Ground all transfer equipment.

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

SHELF LIFE

3 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)

UN1791, Hypochlorite solutions, 8, PG III

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

NMFC CLASS
65

PLACARD
Corrosive

PACKING GROUP
PG III

REVISION HISTORY

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

VERSION	DATE	CHANGE	TRIGGER
1.5	2026-08-12	Canonical data updated: 1 field changed via the provenance/adjudication pipeline. unNumber · canonical change (coa.data_provenance / adjudication)	canonical_change
1.4	2026-08-05	Canonical data updated: 2 fields changed via the provenance/adjudication pipeline. - packingGroup · 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. dotSubsidiaryHazardClass · 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) - 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) - physicalProperties · canonical adjudication / reground (coa.data_provenance)	canonical_change
1.2	2026-07-17	Canonical data updated: 1 field changed via the provenance/adjudication pipeline. dotProperShippingName · 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.