

SAUEREISEN

INSA-LUTE™ ADHESIVE CEMENT NO. 1 PASTE & P-1 POWDER

The original Sauereisen inorganic adhesive for:

Appliances
Assembling
Ceramics
Thermal Conductivity

Insulating
Metals
Sealing

Sauereisen Insa-Lute™ Adhesive Cement No. 1 is specified throughout the automotive, appliance and assembly industries for bonding, insulating, and encapsulating applications. A thermally conductive and electrically insulating cement paste, the material bonds well to metal, ceramics and glass. Upon curing, the cement resembles a durable ceramic and will resist high temperatures. No. 1 is also used to replace sealing wax, bolts, nuts, screws and mica because of its ability to readily adhere to practically any clean, non-plastic surface.

Insa-Lute™ Adhesive Cement is also available in powder form known as Sauereisen Cement No. P-1. When mixed with water at the proper ratio, No. P-1 has the same characteristics as the No. 1 Paste.

Working properties of the cement exhibit a virtually unlimited pot life prior to exposure to air. This feature makes Nos. 1 & P-1 ideal for automated applications using dispensing equipment. Due to its inorganic composition, Insa-Lute™ Adhesive Cement is very stable and will neither outgas, nor cause skin irritations like many other adhesives.

PHYSICAL PROPERTIES

Coefficient of thermal expansion	6.2 x 10 ⁻⁶ /F° (11.1 x 10 ⁻⁶ /C°)
Color	Off white
Compressive strength @ 7 days	3,900 psi (274 kg/cm ²)
Dielectric constant	3.5 - 6.0
Dielectric strength	
@ 70°F (21°C)	12.5 to 51.0 Volts/mil (490 to 2,000 Volts/mm)
@ 750°F (399°C)	≤ 15.0 Volts/mil (588 Volts/mm)
@ 1,475°F (801°C)	≤ 1.3 Volts/mil (51 Volts/mm)
Maximum service temperature	1,800°F (982°C)
Modulus of rupture	460 psi (32 kg/cm ²)
Shear strength	710 psi (49 kg/cm ²)
Tensile strength	410 psi (28 kg/cm ²)
Volume resistivity	
@ 70°F (21°C)	10 ⁸ -10 ⁹ ohm-cm
@ 700°F (21°C)	10 ⁴ -10 ⁵ ohm-cm
@ 1,475°F (21°C)	10 ² -10 ³ ohm-cm

Physical properties were determined on specimens prepared under laboratory conditions using applicable ASTM procedures. Actual field conditions may vary and yield different results; therefore, data are subject to reasonable deviation.

CHARACTERISTICS

- Heat conductive and thermal shock resistant.
- Safely insulates electricity.
- Withstands temperatures to 1,800°F (982°C).
- Resists oil, solvents and most acids.
- Non-toxic and odorless.
- Adheres to metal, ceramics, glass and other surfaces.
- Good mechanical bond.
- Available in paste or powder form.

INSTRUCTIONS

Mixing

No. 1 should be thoroughly remixed to a smooth, uniform consistency prior to use. If necessary, Thinning Liquid No. 14 can be used where the cement is required in a more fluid consistency. Minimal amounts of extra liquid should be used as excess liquid will reduce mechanical strength, increase shrinkage and delay set time.

The mixing ratio of No. P-1 should include 75-80% Powder and 20-25% water, by weight. Mixing may be done with a slow-speed mixer or by hand with a spatula.

Application

Surfaces to receive the cement should be clean and free of grease and dirt. Porous substrates should be dampened slightly with Sauereisen Thinning Liquid No. 14 prior to application.

Sauereisen Insa-Lute™ Adhesive Cement Nos. 1 & P-1 are air-setting and should be used in thin applications. Avoid applying in a thicknesses greater than 1/4 inch. If necessary, multiple coats may be applied to build thickness. Placement of the cement may be done by brushing, dipping or spraying.

SETTING/CURING

Nos. 1 & P-1 cure by air drying at room temperature. Drying time depends on the consistency and thickness of the application. Normally 18-24 hours drying at ambient temperature is sufficient.

When the cement has limited exposure to air, or if it is desired to accelerate the cure, low temperature oven drying at 180°F can be used. Avoid steaming while drying. If the cement will be exposed to elevated temperatures that may approach or briefly exceed the recommended service limits, contact Sauereisen for appropriate drying schedule recommendations.

A heat cure is also suggested where humidity resistance is required. In addition, a moisture-resistant lacquer or silicone coating may be applied to the exposed surfaces.

PACKAGING

No. 1: 1-quart and 1-gallon cans;
5-gallon pails.

No. P-1: 1-quart and 1-gallon cans;
50-lb. bags on stretch
wrapped pallets.

SHELF LIFE

When stored in unopened, tightly sealed containers in a dry location at 70°F, Sauereisen No. 1 Paste has a shelf life of six (6) months and No. P-1 Powder has a shelf life of one year. If there is doubt as to the quality of the material, consult Sauereisen.

CLEAN-UP

All equipment should be cleaned with soap and water before Nos. 1 or P-1 cure. If removal is required after cure, a low concentration of sodium hydroxide may dissolve the cement. Consult Sauereisen for other recommendations.

CAUTION

Consult Material Safety Data Sheets and container label Caution Statements for any hazards in handling this material.

COMPLIANCE STATEMENTS

Insa-Lute™ Adhesive Cement is fully compliant with the following regulations and directives as published by the European Union:

- RoHS** - Restriction of Hazardous Waste
- WEE** - Waste Electrical and Electronic Equipment
- REACH** - Registration, Evaluation and Authorization of Chemicals

WARRANTY

We warrant that our goods will conform to the description contained in the order, and that we have good title to all goods sold. **WE GIVE NO WARRANTY, WHETHER OF MERCHANTABILITY, FITNESS FOR PURPOSE OR OTHERWISE, EXPRESS OR IMPLIED, OTHER THAN AS EXPRESSLY SET FORTH HEREIN.** We are glad to offer suggestions or to refer you to customers using Sauereisen cements and compounds for a similar application. Users shall determine the suitability of the product for intended application before using, and users assume all risk and liability whatsoever in connection therewith regardless of any suggestions as to application or construction. In no event shall we be liable hereunder or otherwise for incidental or consequential damages. Our liability and your exclusive remedy hereunder or otherwise, in law or in equity, shall be expressly limited to our replacement of nonconforming goods at our factory or, at our sole option, to repayment of the purchase price of nonconforming goods.

- Information concerning government safety regulations available upon request.**
- Sauereisen also manufactures products for corrosion resistance, electrostatic discharge protection and machinery grouting.**

SAUEREISEN ...since 1899

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SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION.**Sauereisen, Inc.**

160 Gamma Drive
Pittsburgh, PA 15238-2989
412/963-0303

CHEMICAL EMERGENCY HOTLINE Chemtrec: 800-424-9300/703-527-3887

PRODUCT NAME: **1 INSA-LUTE ADHESIVE CEMENT, PASTE**
ITEM NUMBER: 1-Q
ITEM DESCRIPTION: INSA-LUTE ADHESIVE CEMENT, PASTE
PRODUCT DESCRIPTION: INSA-LUTE ADHESIVE CEMENT, PASTE
CHEMICAL FAMILY: SODIUM SILICATE CEMENT
REVISION DATE: 02/11/09

•PRODUCT USE: High temperature bonding/adhesive compounds

SECTION 2. COMPOSITION AND DATA ON COMPONENTS WITH LIMITS

<u>COMPONENT/CAS #</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>% WT</u>	<u>NOTES</u>
SILICA, CRYSTALLINE 14808-60-7	0.025 MG/M ³ TWA	0.1 MG/M ³ STEL	<90%	
SODIUM SILICATE 1344-09-8	NE	NE	<30%	

•Exposure values shown for guidance only. Please follow applicable regulations.

SECTION 3. HAZARDS IDENTIFICATION

•HMIS rating

Health 1
Flammability 0
Physical Hazard 0
Personal protection C

•THRESHOLD LIMIT VALUE: NE

•EFFECTS OF OVEREXPOSURE: Since this product is a mixture, there is no exposure limit established for it. Hazardous components and their associated permissible exposure limits are listed in the section titled 'Composition and Data on Components'. Specific health hazards from the various ingredients include: Irritation or burns to eyes, and stomach.

•EYE: Pain, redness, and tearing

•SKIN: Itching or burning will occur with repeated or prolonged contact - May exacerbate existing skin conditions.

SECTION 4. FIRST AID MEASURES

•EYE CONTACT: Check for and remove all contact lenses. Flush eyes immediately with water or physiological saline for at least 15 minutes while lifting upper and lower lids. Do not use eye ointment. Seek medical attention.

•INGESTION: If swallowed, do not induce vomiting. Give large quantities of water. Seek medical attention immediately. Never give anything by mouth to an unconscious person.

•INHALATION: If difficulty breathing, move to fresh air at once. Apply artificial respiration if breathing has stopped. Seek medical attention.

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•SKIN CONTACT: Wash contact area thoroughly with soap and water. Remove contaminated clothing. Launder before reuse. Seek medical attention if erythema develops.

SECTION 5. FIRE FIGHTING MEASURES

- AUTO IGNITION TEMPERATURE: NA
 - EXPLOSION DATA - Not sensitive to mechanical impact or static discharge.
 - EXTINGUISHING MEDIA: NA
 - NOTE: Many dusts and aerosols may exhibit explosive characteristics if ignited by static discharge or spark. Exercise care to avoid causing dusting or misting operations such as grinding or drilling.
 - FIRE AND EXPLOSION HAZARDS: NA
 - FIRE FIGHTING PROCEDURES: NA
 - FLAMMABILITY - Not flammable in presence of open flame, sparks, excessive heat and static discharge.
 - FLAMMABLE LIMITS LEL: NA
 - FLAMMABLE LIMITS UEL: NA
 - FLASHPOINT: NA
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- CLEAN-UP PROCEDURE: Spill area may become slippery; use care to avoid falls. Flush spill area with plenty of water. For spill quantities greater than 100 gallons: isolate, dike and store discharged material, if possible. Collect with dry sand, clay or other absorbent. Flush cleaned areas with water. Observe environmental regulations.
 - Wear PPE - gloves, rubber boots, and safety glasses.
-

SECTION 7. HANDLING AND STORAGE

- Avoid contact with eyes, skin, and clothing.
 - For industrial use only!
 - Do not take internally.
 - May cause irritation.
 - Wear chemical splash goggles, gloves, and protective clothing.
 - Wash thoroughly after handling.
- STORAGE: Store in a cool, dry place.
STORAGE: Keep container closed when not in use.
STORAGE: Always mix well before using.
-

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

- *See Section 2 for the components that have limit values that require monitoring at the workplace.*
- This product contains encapsulated silica. By OSHA letter of interpretation, the silica is not considered respirable in either the cement paste form or cured cement form. However, if the cured cement is polished, ground or chipped during processing, handling or use, the silica maybe released as an airborne respirable particle. In these instances appropriate personal protection equipment and local ventilation controls must be employed.
 - EYE PROTECTION: Chemical resistant goggles and/or face shield.
 - RESPIRATORY PROTECTION: Use dust respirators in compliance with OSHA Standard 1910.134. For emergency, a self-contained positive pressure, breathing appartus or full-face respirator is recommended. If TLV of any component is exceeded, use appropriate respiratory protection or ventilate in accordance with OSHA Regulation 29 CFR Part 1910.

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·SKIN PROTECTION: Suitable protective gloves (neoprene, butyl rubber, or viton). Clothing should be clean, long-sleeved workclothes. Synthetic apron. Boots. Wash thoroughly before eating, smoking, applying cosmetics, etc. Thoroughly launder work clothes before reuse. Safety shower nearby.

·VENTILATION: Normal ventilation for good working conditions should be used.

·OTHER PRECAUTIONS: Safety shower and eyewash station should be within direct access. Keep containers closed. Dries to form a glassy film that can cut skin. Spills are very slippery. Can etch glass.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- % VOLATILE BY VOLUME: NA
- APPEARANCE AND ODOR: Creamy, white paste, no appreciable odor.
- BOILING POINT: 212°F (100°C)
- COEFFICIENT OF WATER/OIL DISTRIBUTION: NA
- EVAPORATION RATE: NA
- MELTING POINT: NA
- ODOR THRESHOLD: Not available
- PH: 11.5
- SPECIFIC GRAVITY: 2.01
- VAPOR DENSITY (AIR=1): Same as water vapor.
- VAPOR PRESSURE: Vapor is water

SECTION 10. STABILITY AND REACTIVITY

- CONDITIONS TO AVOID: Flammable hydrogen gas may be produced on prolonged contact with metals such as aluminum, tin, lead, and zinc.
- HAZARDOUS DECOMPOSITION PRODUCTS: Not known
- HAZARDOUS POLYMERIZATION: Will not occur.
- INCOMPATIBILITY: (Materials to avoid) Acids, salts, or alcohols may cause gel formation (non-hazardous)
- STABILITY: Stable under ordinary conditions of use and storage.

SECTION 11. TOXICOLOGICAL INFORMATION

- ACGIH NOT AVAILABLE
- IARC YES
- EFFECTS OF ACUTE EXPOSURE: Refer to Section 3.
- EFFECTS OF CHRONIC EXPOSURE: Refer to Section 3.
- MUTAGENIC EFFECTS: If not addressed in Section 3, the data is not available.
- REPRODUCTIVE TOXICITY: If not addressed in Section 3, the data is not available.
- TERATOGENIC EFFECTS: If not addressed in Section 3, the data is not available.
- NAME(S) OF TOXICOLOGICALLY SYNERGISTIC PRODUCTS AND EFFECTS: If not addressed in Section 3, data is not available.
- ADDITIONAL INFORMATION: Crystalline silica (quartz) is encapsulated in liquid as a paste.
ADDITIONAL INFORMATION: Crystalline Silica (Quartz)
- Silicosis - The major concern is silicosis caused by the inhalation of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), accelerated, or acute.
- Cancer - Silica is listed by IARC and NTP as having sufficient evidence to be a carcinogen in humans and in experimental animals for the carcinogenicity of quartz and cristobalite. The overall IARC evaluation was that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (group 1).
- Scleroderma - There is evidence that exposure to respirable crystalline silica or silicosis is associated with incidence of scleroderma of the lungs.
- Tuberculosis - Individuals with silicosis are at risk to develop tuberculosis, if exposed

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to persons with tuberculosis.

- Nephrotoxicity - Recent studies suggest that exposure to respirable crystalline silica or that the disease silicosis is associated with the increased incidence of kidney disorders.
 - ADDITIONAL INFORMATION: Sodium silicate solution has no known chronic hazard.
 - EYE IRRITANT: Yes
 - INGESTION IRRITANT: Yes
 - INHALATION IRRITANT: Yes
 - RESPIRATORY SENSITIZER: No
 - SKIN IRRITANT: Yes
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SECTION 12. ECOLOGICAL INFORMATION

- AQUATIC TOXICITY: Sodium silicate solution has low toxicity (96-hr LD50=500-5,000mg/liter). The 96 hr TLM in mosquitofish is 2,320mg/liter. High pH (alkalinity) of undiluted material is harmful to aquatic life.
 - Crystalline silica (quartz) is not known to be an environmental hazard.
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SECTION 13. DISPOSAL CONSIDERATIONS

- WASTE DISPOSAL: Comply with federal, state and local regulations. If approved, flush with water to chemical sewer. For large quantities, neutralize with dilute acid and landfill solids or flush neutral liquid to sewer with plenty of water.
 - EUROPEAN COMMUNITY WASTE DISPOSAL KEY: Not known
 - UNCLEANED PACKAGINGS: Disposal must be made according to official regulations.
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SECTION 14. TRANSPORT INFORMATION

- DOT I.D. NO.: NOT REGULATED
 - DOT SHIPPING NAME: NA
 - DOT HAZARD CLASS: NOT REGULATED
 - DOT LABEL: NONE
 - OTHER: NA
 - NMF CLASSIFICATION: HIGH TEMPERATURE BONDING MORTAR
-

SECTION 15. REGULATORY INFORMATION

- U.S. FEDERAL REGULATIONS:
- TSCA Status:
 - Components are included in the EPA Toxic Substances Control Act (TSCA) Chemical Substances Inventory.
- SARA TITLE III:
 - Section 302 Extremely Hazardous Substances: None above detection limits.
 - Section 311/312 (40 CFR 370) Hazardous Categories:
 - Carcinogen
 - Irritant
 - Section 313: Toxic Categories (40 CFR 370) Toxic chemicals above "De Minimis" level are:
 - There are no listed chemicals above detection limits in this compound.

CERCLA:

- None

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•STATE REGULATIONS:

- California: Proposition 65 substances (components) known to the State of California to cause cancer and reproductive toxicity and subject to warning and discharge requirements under the "Safe Drinking Act of 1986".
- It has not been determined and cannot be ascertained that this product would not expose users to the listed chemicals at the very low levels prescribed in the regulations. Therefore, it is the user's responsibility to determine if the percent of hazardous/carcinogenic ingredients listed elsewhere in the MSDS comply with State of California regulations.

CANADA

- This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by CPR.

•CANADA

- DSL: Components included on inventory.

WHMIS HAZARD CLASS(ES):

- Class D, Division 2, Subdivision A: Materials cause other toxic effects, very toxic material.
- Not controlled

WHMIS TRADE SECRET REGISTRY NUMBER(S): Not Applicable

WHMIS SYMBOLS:

- Stylized T

•EUROPEAN ECONOMIC COMMUNITY (EEC)

EINECS Inventory: Components included on inventory

EEC SYMBOL(S):

- Irritant
- Harmful

EEC RISK ® PHRASES:

- Irritating to eyes, respiratory system, and skin

EEC SAFETY PHRASES

- Avoid contact with skin and eyes
- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
- Keep container tightly closed

SECTION 16. OTHER INFORMATION

- This MSDS contains information and recommendations based upon our present knowledge and data believed to be reliable. All data shown here are subject to reasonable variation and are supplied as an accommodation to the buyer. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. This MSDS applies only to the product in its "as manufactured"

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state, since the application to which the product is subjected may change its characteristics. The buyer is responsible for determining the safety, toxicity, and suitability of the product under the conditions of their use of the product. Buyers also have the responsibility for insuring that the MSDS is available to their employees, product users, and handlers.

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•NAV=NOT AVAILABLE NE=NOT ESTABLISHED NA=NOT APPLICABLE ND=NOT DETERMINED EV=UNDER
EVALUATION
