Powder Loads *For Simpson Strong-Tie® Powder-Actuated Tools*
SAFETY DATA SHEET

1. IDENTIFICATION

Product Identifier:	**P22AC1, P22AC2, P22AC3, P22AC4** **P27SL2, P27SL3, P27SL3M, P27SL4, P27AL4M, P27SL5, P27SL5M, P27SL6**
Recommended Use:	Powdertool Loaded Round for use with Simpson Strong-Tie® Powder-Actuated Tools
Use Restrictions:	None Known.
Company:	Simpson Strong-Tie Company Inc.
Address:	5956 W. Las Positas Blvd. Pleasanton, CA 94588, USA
Phone:	1-800-999-5099
Website:	www.strongtie.com
Emergency:	1-800-535-5053 (US/Canada) 1-352-323-3500 (International)

For most current SDS, please visit our website at **www.strongtie.com/sds**

2. HAZARD IDENTIFICATION

Cartridge is explosive. Keep away from heat. Do not subject to mechanical shock. The various components of this product are completely sealed within a cartridge. Under normal handling of this product no exposure to any harmful materials will occur. However, when the product is fired a small amount of particles containing trace amounts of harmful substances may be produced. These particles could result in the health hazards listed below, avoid inhalation.

Physical Hazards:	Explosive	
	Flammable Solid	Category 1
Health Hazards	Acute Toxicity, Inhalation	Category 4
	Skin Corrosion/Irritation	Category 3
	Serious Eye Damage/Irritation	Category 2B
	Sensitization, Respiratory	Category 1
	Carcinogenicity	Category 2
	STOT, Single Exposure	Category 3 (Respiratory Tract Irritation)
Environmental Hazards:	Acute Environmental Hazard	Category 2
	Chronic Environmental Hazard	Category 2

Signal Word: **DANGER!**

Hazard Statements: Unstable explosives. Explosive, mass explosion hazard. Fire or projection hazard. Flammable solid. May intensify fire; oxidizer. Harmful if inhaled. Causes mild skin irritation. Causes eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. Suspected of causing cancer. Toxic to the aquatic environment with long lasting effects.

Precautionary Statements:

Prevention: Obtain special instructions for use. Do not handle until all safety precautions have been read and understood. Do not subject to grinding, shock, or friction. Keep only in original packaging. Keep away from heat/sparks/open flame/hot surfaces. No Smoking. Keep cool. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe mist or vapor. Use only outdoors or in a well-ventilated area. In case of inadequate ventilation wear respiratory protection. Wash thoroughly after handling. Avoid release to the environment.

Response: In case of fire: Explosion risk. Evacuate area. Do not fight fire when fire reaches explosives. If exposed or concerned: Call a poison center/doctor. If Inhaled: Remove victim to fresh air and keep in a rest position comfortable for breathing. If experiencing respiratory symptoms: Call poison center/doctor. If swallowed: Do NOT induce vomiting. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before re-use. If in

eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Storage: Store locked up. Store in a well-ventilated place. Protect from sunlight.

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

Hazards not otherwise Classified (HNOC):

Acute Toxicity, Oral

Toxic if swallowed. Do not eat, drink, or smoke when using this product. Due to the nature of this product ingestion is highly unlikely. This product contains lead; ingestion of lead can be toxic. It is unlikely that the amount of particles that someone would be exposed to from firing would be sufficient to cause any effects. Lead can cause abdominal pain, constipation, cramps, nausea and/or vomiting. Chronic exposure to lead can cause kidney damage, anemia, reproductive effects, developmental effects and permanent nervous system damage in humans including changes in cognitive function. If this product is ingested do NOT induce vomiting. Contact poison control/get medical attention.

OSHA Regulatory Status: Explosive

3. COMPOSITION INFORMATION

Chemical Name	CAS Number	Weight %
Iron	7439-89-6	0-97
Copper	7440-50-8	50-65
Zinc	7440-66-6	15-32
Nitrocellulose	9004-70-0	7-13
Nitroglycerin	55-63-0	0.5-2
Normal Lead Styphnate	15245-44-0	0.1-1

Composition Note: This product is a mixture. Hazardous ingredients are listed above. May include other nonhazardous ingredients. May include other trace ingredients, see Section 15.

4. FIRST-AID MEASURES

Eye Contact: Immediately flush eyes with plenty of lukewarm water for at least 15 minutes while holding the eyes open. Remove contact lenses if present and easy to do. If redness, burning, blurred vision, or swelling persists, **consult a physician.**

Skin Contact: Wash affected area with soap and water. Remove contaminated clothing if necessary. Do not apply greases or ointments. If redness, burning, or swelling persists, **consult a physician**.

Ingestion: Do not induce vomiting. Never administer anything by mouth to an unconscious person. Rinse out mouth with water, and then drink sips of water to remove taste. Do not leave victim unattended. If vomiting occurs spontaneously, lay victim on side and keep head lower than waist to prevent aspiration. **Consult a physician.**

Inhalation: Remove patient to fresh air. Give oxygen or artificial respiration if needed. If patient continues to experience difficulty breathing, **consult a physician.**

Most Important Symptoms: Irritant effects.

General Information: Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Flood area with water. If no water is available, carbon dioxide, dry chemical or earth may be used. If the fire reaches the cargo, withdraw and let fire burn.

Additional Information: If fire reaches cargo, do not fight. Evacuate all persons, including emergency responders from the area for 1500 feet (1/3 mile) in all directions.

Hazards during Fire-Fighting: Material is explosive; fire-fighting concerns must also address the potential of the physical characteristics of this product.

Fire-Fighting Procedures: Use standard fire-fighting procedures and consider the hazards of other involved materials. In case of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn. Isolate fuel supply from fire. Move undamaged containers from immediate hazard area if it can be done with minimal risk. If this cannot be done, allow fire to burn. Cool equipment exposed to fire with water, if it can be done with minimal risk. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep unnecessary personnel away. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Clean-Up Methods: Spills of this material should be handled carefully. Do not subject materials to mechanical shock. A spill of this material will normally not require emergency response team capabilities. If, however, a large spill occurs, call 1-888-289-1911 for technical assistance.

Environmental Precautions: Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so.

7. HANDLING AND STORAGE

Handling: Handle in accordance with good industrial hygiene and safety practice. Avoid direct contact with heat and ignition sources. Avoid prolonged skin contact, contact with eyes, and ingestion. It is recommended that product is used in well ventilated areas. Wash hands before eating, drinking, and/or smoking. No smoking or open flames should be in the vicinity of the product. Provide for appropriate exhaust ventilation and dust collection at machinery. Avoid dust formation.

Storage: Store in accordance with local/regional/national/international regulations and standard codes. Store in a cool, well-ventilated area with the lid tightly sealed when not in use. Keep away from heat and direct sunlight. Keep away from children. Ensure good ventilation/exhaustion at the workplace. Keep ignition sources away - Do not smoke. Prevent impact and friction. Store in a cool 41-77°F (5-25°C), dry and dark place only in the original packaging. Protect from dampness and humidity. Protect from heat and direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective Measure: Wear appropriate personal protective equipment. Use of hearing protection is recommended when using this product.

Eye Protection: Wear goggles or safety glasses.

Hand Protection: Not normally needed, general purpose work gloves recommended.

Skin and Body Protection: Wear long sleeve shirt/long pants and other clothing as required to minimize contact.

Respirator Protection: The use of a respirator is not required during normal use of this product in properly ventilated areas. An approved respirator should be worn whenever workplace conditions warrant respirator use.

General Hygiene: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Engineering Controls: When using indoor good general ventilation should be used. Use explosion-proof ventilation. Provide eyewash station and emergency shower.

Exposure Limits:

Component	OSHA (PEL)	ACGIH (TLV)	NIOSH Pocket Guide
Copper (CAS 7440-50-8)	0.1 mg/m^3 (fume) 1 g/m^3 (dust/mist)	0.2 mg/m^3 (fume) 1 g/m^3 (dust/mist)	N/E

Nitrocellulose (CAS 9004-70-0)	5 mg/m^3 (respirable) 15 mg/m^3 (total dust)	N/E	5 mg/m^3 (respirable) 10 mg/m^3 (total dust)
Nitroglycerin (CAS 55-63-0)	0.2 ppm (skin)	0.05 ppm (skin)	0.1 mg/m^3 (skin, STEL)
Lead Styphnate (CAS 15245-44-0)	0.05 mg/m^3 (TWA)	0.05 mg/m^3	N/E

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Cylindrical brass/steel cartridge	**Freezing/Melting Point:**	N/A
Form:	Solid	**Boiling Point:**	N/A
Color:	Brass/Gray	**Flash Point:**	N/A
Odor:	Odorless	**Evaporation Rate:**	N/A
Odor Threshold:	N/E	**Specific Gravity:**	N/A
pH:	N/A	**VOC:**	N/A
Upper Flam:	N/A	**Lower Flam:**	N/A
Vapor Pressure:	N/A	**Vapor Density:**	N/A
Decomposition:	N/A	**Kow:**	N/A
Solubility:	Insoluble	**Viscosity:**	N/A

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient temperature and pressure.
Condition to Avoid: Avoid all possible sources if ignition. Mechanical shock, **cartridge may detonate if case is punctured or severely damaged.**
Substances to Avoid: Acids, class A & B explosives, strong oxidizers, caustics.
Hazardous Reactions: Hazardous polymerization does not occur.
Decomposition Products: Nitrogen oxides, carbon monoxide, lead oxides, carbon dioxide, lead dust/fume

11. TOXILOGICAL INFORMATION

Information on likely routes of exposure:

Ingestion: Ingestion is unlikely.
Inhalation: When the product is fired, a small amount of particles may be generated which may be irritating to respiratory tract. Inhalation of high concentrations of metallic copper dusts or fumes may cause nasal irritation and/or nausea, vomiting and stomach pain. Nitroglycerin will produce dilation of blood vessels and drop in blood pressure which may affect the heart; it has also been shown to cause methemoglobinemia (cyanosis).
Skin contact: The physical nature of this product makes absorption unlikely. Particles may cause mild skin irritation.
Eye contact: When the product is fired, a small amount of particles may be generated which may be slightly irritating to the eyes.

Information on toxicological effect:

Acute toxicity: Not expected to be acutely toxic when used and handled as described, inhalation of particles may be harmful. Toxic if swallowed. Do not ingest.

Component	Species	Test Result
Copper (CAS 7440-50-8)		
Acute, *Dermal*, LD50	Rabbit	375 mg/kg (subcutaneous)
Acute, *Oral*, LD50	Rat	3.5 mg/kg
Nitrocellulose (CAS 9004-70-0)		
Acute, *Oral*, LD50	Rat	> 5 g/kg
Nitroglycerin (CAS 55-63-0)		
Acute, *Dermal*, LD50	Rat	>280 mg/kg
Acute, *Oral*, LD50	Rat	105 mg/kg
Zinc (CAS 7440-66-6)		
Acute, *Oral*, LD50	Rat	630 mg/kg

Skin corrosion/irritation:	Particles may cause mild skin irritation.
Eye damage/eye irritation:	Particles may cause eye irritation.
Respiratory sensitization:	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization:	Not likely to cause skin sensitization.
Germ cell mutagenicity:	This product has not been shown to be mutagenic. It contains trace levels of lead, lead has been shown to be mutagenic.
Carcinogenicity:	This product contains trace levels of lead, lead is listed as a carcinogen by IARC (2B: Possibly Carcinogenic to Humans) and NTP (Reasonably Anticipated to be a Human Carcinogen).
Reproductive toxicity:	This product is not known or reported to cause reproductive or developmental effects. Lead has been shown to affect fetal development including birth defects and reduced male reproductive function in laboratory animals.
Aspiration hazard:	Not applicable.
Specific target organ toxicity:	
Single exposure	Inhalation of particles may cause respiratory irritation.
Repeated exposure	Not classified.
Further information:	Toxicological, ecotoxicological, physical, and chemical properties may not have been fully investigated. Hazard data above is estimated based on best available information. Some workers with certain pre-existing medical conditions such as: asthma, allergies, or impaired pulmonary and/or liver functions, or who may be particularly susceptible to this material, may be affected by exposure to this material.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Cartridges themselves are not likely to be harmful to the aquatic environment. Individual constituents of the cell are toxic to aquatic life with long lasting effects. Avoid release to the environment.

Component	Species	Test Result
Copper (CAS 7440-50-8) The toxicity of copper to aquatic organisms varies significantly not only with the species, but also with the physical and chemical characteristics of the water. Copper concentrations varying from 0.1 to 1.0 mg/l have been found by various investigators to be not toxic for most fish. However, concentrations of 0.015 to 3.0 mg/l have been reported as toxic, particularly in soft water to many kinds of fish, crustacea, mollusks, insects, and plankton.		
Lead		
Aquatic, Fish, LC50	Bluegill Sunfish	2-5 mg/l, 96 Hours
Nitrocellulose (CAS 9004-70-0)		
Aquatic, LC50	Fish, Invertebrates, Algae	> 1000 mg/l
Nitroglycerin (CAS 55-63-0)		
Aquatic, Fish, LC50	Bluegill Sunfish	1.228 mg/l, 96 Hours
Zinc (CAS 7440-66-6)		
Aquatic, Fish, LC50	Bony Fish Superclass	0.52-3.6 mg/l, 96 Hours
Aquatic, Crustacea, LC50	Daphnia magna	0.068 mg/l, 48 Hours

Persistence and degradability:	No data available.
Bioaccumulative potential:	Not expected to bioaccumulate.
Mobility in soil:	No data available.
Other adverse effects:	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption) are expected from this product.

13. DISPOSAL CONSIDERATIONS

Waste Disposal of Substance: If this product becomes a waste, it meets the criteria of a hazardous waste under 40CFR261 and would have the following EPA hazardous waste number: D003. This product is also subject to the Land Disposal Restrictions under 40CFR268. Dispose of container and unused contents in accordance with federal, state, and local requirements.

14. TRANSPORTATION INFORMATION

DOT: ORM-D Cartridges for Tools, Blank / Limited Quantity

DOT/RID/IMDG/IATA/CanadaTDG:

UN number:	UN0014
UN proper shipping name:	Cartridges for Tools, Blank
Transport hazard class(es):	1.4S
Packing group:	II
Label:	1.4 S (Placard must be applied in accordance with 49 CFR 172.504)

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
This substance/mixture is not intended to be transported in bulk.

Note: LAND - See 49 CFR 173.63 for ORM-D or Limited Quantity Reclassification
Limited Quantity is not authorized for international air shipment. As of January 1, 2013 ORM-D will no longer be valid for air shipment. ORM-D will no longer be valid for any mode effective January 1, 2020.

AIR – 25kg per package passenger aircraft
100kg per package cargo aircraft.

15. REGULATORY INFORMATION

US Federal Regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) Not regulated.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050) Not listed.
CERCLA Hazardous Substance List (40 CFR 302.4)

Copper (CAS 7440-50-8)	LISTED (RQ: 5000lbs)
Zinc (CAS 7440-66-6)	LISTED (RQ: 1000lbs)
Nitroglycerin (CAS 55-63-0)	LISTED (RQ: 10 lbs)

Clean Water Act/Oil Pollution Act

Zinc (CAS 7440-66-6)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories:				
Immediate	**Delayed**	**Fire**	**Pressure**	**Reactivity**
No	No	Yes	Yes	No

SARA 302 Extremely hazardous substance No
SARA 311/312 Hazardous chemical Yes
SARA 313 (TRI reporting)

Component	**CAS**	**% In Blend (approx.)**
Copper	7440-50-8	50-65
Zinc	7440-66-6	15-32
Nitroglycerin	55-63-0	0.5-2
Lead and Lead Compounds	----	< 1

US. California Proposition 65: WARNING: This product contains a chemical listed by the State of California as known to cause cancer, birth defects, or reproductive harm.

Component	**Regulation**	**% In Blend (approx.)**	**Remark**
Lead and Lead Compounds (CAS 7439-92-1)	ACGIH	Trace	Carcinogenic Reproductive Harm

US State Right-To-Know Lists

Chemical	Massachusetts RTK	New Jersey Work and Community RTK Act	Pennsylvania Worker and Community RTK Law	Rhode Island RTK
Copper (CAS 7440-50-8)	Listed	Listed	Listed	
Zinc (CAS 7440-66-6)	Listed	Listed		
Nitrocellulose (CAS 9004-70-0)	Listed	Listed	Listed	
Nitroglycerin (CAS 55-63-0)	Listed	Listed	Listed	Listed
Lead and Lead Compounds	Listed	Listed	Listed	Listed

International Inventories

Country or Region	Inventory	On Inventory? (Yes/No)
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

This product has been classified according to the hazard criteria of the CPR and the SDS contains all of the information required by the CPR.
This product is not subject to WHMIS.
This product is regulated as a Class 6 Explosive in Canada

European Regulations

Classification under Directive 67/548/EEE or Directive 1999/45/EC

Danger Symbol: E Explosive; Xn Harmful; Xi Irritant

Risk Phrase9s):
- R2 Risk of explosion by shock, friction, fire, or other sources of ignition
- R20/21 Harmful by inhalation and in contact with skin
- R28 Toxic if swallowed
- R37 Irritating to respiratory system
- R40 Limited evidence of carcinogenic effect

Safety Phrase(s)
- S2 Keep out of reach of children
- S13 Keep away from food, drink, and animal feeding stuffs
- S16 Keep away from sources of ignition – No smoking
- S23 Do not breathe fumes
- S24/25 Avoid contact with skin and eyes
- S34 Avoid shock or friction
- S35 This material can its container must be disposed of in a safe way
- S36/39 Wear suitable protective clothing and eye/face protection
- S45 In case of accident or if you feel unwell, seek medical advice immediately

16. OTHER INFORMATION

Date Prepared or Revised: June 2014
Supersedes: March 2012

Legend

ACGIH:	American Conference of Governmental Industrial Hygienists
CAS No.:	Chemical Abstract Service Registry Number
CERCLA:	Comprehensive Environmental Response, Compensation and Liability Act (U.S. EPA)
CPR:	Controlled Product Regulations (Canada)
DOT:	Department of Transportation (U.S.)
EPA:	Environmental Protection Agency (U.S.)
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals
HEPA:	High-Efficiency Particulate Air
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods code
LPP:	Limité Permisible Ponderado (Chile)
NIOSH:	National Institute of Occupational Safety and Health (U.S.)
NFPA:	National Fire Protection Association (US)
NTP:	National Toxicology Program (US)
OSHA:	Occupational Safety and Health Administration (U.S.)
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendments and Reauthorization Act (U.S. EPA)
SDS:	Safety Data Sheet
STEL:	Short Term Exposure Limit (15 minute Time Weighted Average)
STOT:	Specific Target Organ Toxicity (GHS Classification)
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act (U.S.)
TWA:	Time Weighted Average (exposure for 8-hour workday)
U.S.:	United States
VOC:	Volatile Organic Compounds
WHMIS:	Canadian Workplace Hazardous Materials Information System

Safety Data Sheet (SDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this SDS. This SDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

FOR INTERNAL USE ONLY

PATLOADS:
Explosive 1.4