

Midland Engineering Co., Inc. Safety Management System			Doc No:	ABLAST
			Initial Issue Date	12/10/15
Chapter 03-Abrasive Blasting			Revision Date:	Initial Version
			Revision No.	0
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## PURPOSE

To establish safety procedures when practicing abrasive blasting and protect employees from associated risks.

## SCOPE

This procedure applies to all employees and subcontractors working within Midland Engineering Co., Inc.

## INTRODUCTION

Abrasive blasting is primarily used for prepping the surface of metal material for smooth acceptance of a coating or lining. The process needs to address the following: mechanical precautions, personal protective equipment, housekeeping and sanitation, administrative dust control methods, and respiratory protection.

## MECHANICAL PRECAUTIONS

- Frequent inspections of machines and their parts shall occur and any device showing excessive wear shall be repaired or replaced.
- To prevent the buildup of static charges, blast nozzles shall be bonded and grounded. External attachment to a hose fitting will prevent accidental disengagement.
- The nozzle will be will be operated by a valve that shall be held manually and an additional support device used for safe storage.
- Hose lengths shall be connected by metallic connectors with pin-clips that prevent disengagement.
- Anti-whip arresters may be used between connectors and will be used in conjunction with pin-clips on all bull hoses from the compressor to the abrasive blast pot.
- Where flammable or explosive dust mixtures may be present, construction of equipment and any exhaust system, including all electric wiring, will conform to American National Standard Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z33.1-1961 (NFPA 91-1961), as well as 1926 Subpart S.

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- Compressed air will only be used when the pressure is reduced to 30 p.s.i. or less and will not be used to cleaning clothes while being worn or in contact with any part of the body.

### PERSONAL PROTECTIVE EQUIPMENT (PPE) and RESPIRATORY PROTECTION

Midland Engineering Co., Inc. will provide all personal protective equipment that is required to conduct the work and anyone working in the area of abrasive blasting to ensure a safe environment. Abrasive blasting respirators shall be worn by all abrasive blasting operators when conditions deem it necessary. Additional PPE must provide protection to the eyes, face and body when the respirator is unable to provide complete protection. Air for abrasive-blasting respirators must be free of harmful quantities of dusts, mists, or noxious gases. Reference RESPIRATORY PROTECTION PROGRAM.

The Safety Director is responsible for the documentation, monitoring, implementation, training and auditing of the personal protective equipment program on an annual basis. Employees are responsible for cleaning, maintaining, and reporting issues related to equipment problems. All personal protective equipment will be subject to a comprehensive audit on an annual basis.

### HOUSEKEEPING AND SANITATION

Good housekeeping practices will be maintained. Operation of abrasive blasting equipment should also ensure that no additional slip, trip or fall hazards are created. A facility separate from where abrasive blasting has recently occurred or is currently occurring will be available to employees to wash hands and eat. Accumulation of abrasive blasting dust on ledges and walkways will not be tolerated. Clean up dust spills promptly.

### ADMINISTRATIVE DUST CONTROL METHODS

- Isolation- As much of the operations of abrasive blasting that are possible should occur in a specified location referred to as the "blasting zone". The area should be marked with a warning sign that reads, "CAUTION Abrasive Blasting Area- Eye, Ear and Respirator Protection Must Be Worn."
- Enclosure- Small objects should be blasted in an enclosure specifically designed to reduce the hazards if possible.

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## EXPOSURE LIMITS

The abrasives and the surface coatings on the materials blasted become shattered and pulverized during blasting operations, the dust formed by this work will contain particles of a size that can be inhaled. Hazardous substances such as gases, vapors, dust, fumes, mist, etc. shall be given special consideration as to the composition and toxicity of these sources when evaluating potential health hazards of the work. Concentration of breathable dust or fume in the abrasive blasting operator's breathing zone will be kept below Threshold Limit Value (TLV) as required by OSHA. The same consideration will be given regarding exposure of any other worker in the area to this breathable dust.

Threshold Limit Value (TLV) - TLVs can be used as a guideline for determining the appropriate level of worker protection. These values have been derived for many substances and can be found in Threshold Limit Values for Chemical Substances and Physical Agents, which are published annually by the American Conference of Governmental Industrial Hygienists (ACGIH). The ACGIH defines three categories of TLVS: time-weighted average (TWA), short-term exposure limit (STEL) and ceiling (C). All three categories may be useful in selecting levels of protection within a work area. Refer to the Threshold Limit Values for Chemical Substances and Physical Agents for additional details.

## GENERAL PROCEDURES

- Silica sand may only be used for blasting operations in a specifically designated remote location that provides adequate equipment to handle silica sand blasting.
- Only blasting materials with a lower toxicity than silica sand should be used for portable blasting operations. Exceptions must be approved by Corporate Safety Manager.
- Portable sand cups shall be checked to prevent movement. Air supply hoses shall be provided with safety pins at all connections and be turned off while refilling the cup with material.
- An attendant is required to stand by the sand cup while blasting is in progress