

## **Sand Blaster Safety Rules**

BEFORE USING ANY ABRASIVE BLAST CLEANING PRODUCT, READ ALL INSTRUCTIONS, LITERATURE, LABELS, SPECIFICATIONS, AND WARNINGS SENT WITH AND AFFIXED TO THE EQUIPMENT. DO NOT PAINT OVER, ALTER OR DEFACE THE EQUIPMENT INSTRUCTION TAGS, DECALS, OR PLACARDS. IMMEDIATELY REPLACE ALL DECALS, TAGS, PLATES AND PLACARDS WHICH BECOME ILLEGIBLE. IF THE EQUIPMENT USER, OR ANY ASSISTANTS OF THE USER CANNOT READ OR THOROUGHLY UNDERSTAND THE WARNINGS AND INFORMATION CONTAINED IN THE EQUIPMENT INSTRUCTION MANUAL(S) OR DECALS ATTACHED TO THE EQUIPMENT, IT IS THE RESPONSIBILITY OF THE USER'S EMPLOYER, AND THE ASSISTANT'S EMPLOYER TO EDUCATE, TRAIN, AND TEST THEM ON THE PROPER OPERATION AND SAFETY PROCEDURES OF THE EQUIPMENT. PERIODIC INSPECTIONS AT THE WORK SITE SHOULD BE MADE BY SUPERVISORY PERSONNEL TO ENSURE THE EQUIPMENT IS BEING PROPERLY USED AND MAINTAINED IN A SAFE WORKING ENVIRONMENT. A COPY OF THE EQUIPMENT MANUAL(S) MUST BE KEPT WITH THE EQUIPMENT, AND MUST BE READILY ACCESSIBLE TO EQUIPMENT USERS, USER ASSISTANTS, AND SUPERVISORS. FAILURE TO COMPLY WITH ALL INSTRUCTIONS, WARNINGS, AND CAUTIONS CAN RESULT IN SEVERE BODILY INJURY OR IMPAIRMENT, SEVERE ILLNESS, OR DEATH. The information provided, described and illustrated in the equipment manuals is intended for experienced, knowledgeable users of abrasive blast cleaning equipment, surface finishing equipment, and supplies ("products"). The products described in this warning paragraph may be combined as determined solely by the user, in a variety of ways and purposes. However, no representations are made as to intended use, performance standards, engineering suitability, safe practices or compliance with government regulations and laws that apply to these products, products of others, or a combination of various products chosen by the user or others. It is the responsibility of the users of this product, products of third parties, and a combination of various products, to exercise caution, and to familiarize themselves with all applicable laws, government regulations, and safety requirements. Nor are representations made or intended as to the useful life, maintenance cycles, efficiency or performance of the referenced products or any combination of products. Surface preparation job sites include a wide range of equipment used in the task of blast cleaning, including but not limited to: abrasive blast cleaning machines; scaffolding; air compressors; abrasive (media); work platforms or booms; dehumidification equipment; ventilation equipment; supplied air respirators; air filters; safety alarms and atmospheric measuring instruments; light systems; paint spray equipment and coating supplies. While these products may be offered by Blast Equipment Warehouse (B.E.W.), many of the products may be supplied by other manufacturers. It is the responsibility of the user, and/or employer of the equipment user to contact each equipment manufacturer and supplier of other products for information, training, instructions and warnings with regard to safe operation, and proper maintenance of the equipment in the particular application the equipment is being used. Product information sheets, owner's manuals, and technical specifications must not be used for estimating purposes. Production rates, labor performance or surface finishes are the sole responsibility of the user based on the user's expertise, experience and knowledge of the industry and job variables.

### **Work Environment Hazard**

It is the responsibility of the user to ensure that proper and comprehensive training of operators has been performed, and all environmental and safety precautions/warnings observed. Consult with the equipment manufacturer for training programs and instructional materials that are available prior to using equipment. Blast Equipment Warehouse provides a variety of excellent products to the surface preparation industry. We are confident that all proficient users, operators and contractors in and outside of this industry will use abrasive blast cleaning products in a safe and knowledgeable manner.

It is the responsibility of the job contractor / blast operator employer to provide at no cost proper protective equipment to all job personnel prior to entering or working in an abrasive blast cleaning environment. A NIOSH approved supplied-air respirator, designed for abrasive blast cleaning (Type CE) **MUST BE WORN AT ALL TIMES** in blast cleaning work environments, which may as a result of the blast cleaning process, contain toxic levels of dust containing silica, arsenic, cyanide or other toxins in the abrasive, or lead and other metals in the surface coating to be blast cleaned. The law requires that employers / blast equipment operators measure and monitor the airborne contaminant levels in the work area and immediate vicinity for all existing and potential contaminants. Failure to observe these steps may cause death and/or damage to your health, including certain delayed lung diseases such as silicosis, pneumoconiosis or asbestosis. Other work environment hazards may be present from contaminated water, adjacent coating application fumes, asbestos, chemicals, and engine exhaust (carbon monoxide). The law requires that all operators consult with their employers on the proper personal protective equipment and measures that **MUST** be taken to protect personnel within the work environment, and others that may be **EXPOSED** to blast cleaning work environment hazards. For additional information contact the U.S. Environmental Protection Agency, U.S. Department of Labor, Washington, D.C., National Institute for Occupational Safety and Health (NIOSH), and the Centers for Disease Control and Prevention (CDC).

### **Operation Safety Equipment (Customer Supplied)**

The Occupational Safety and Health Administration (OSHA) **REQUIRES** protective safety equipment and clothing be used at all times **FOR ALL PERSONNEL IN THE IMMEDIATE VICINITY OF THE ABRASIVE BLAST CLEANING AREA**, including but not limited to: (1) Abrasive-resistant suit, leather gloves, safety shoes with non-slip soles, ear and eye protection; (2) NIOSH APPROVED supplied-air fed respirator (helmet), designed for abrasive blast cleaning, Type CE (positive pressure/pressure demand) supplied by a continuous source of breathing air that meets **AT LEAST** the requirements for Type 1 gaseous air described in the Compressed Gas Association Commodity Specification G-7.1 (Grade D or higher quality) as specified by Federal Law 42 CFR, Part 84, Subpart J, 84.141(b) and 29 CFR 1910.134, and the respirator manufacturer. Air must be filtered and monitored for carbon monoxide and other toxic gases to assure clean, breathing air at all times. Adhere to all NIOSH, EPA, ACGIH recommendations, limitations, and regulations pertaining to approved respirator usage within OSHA permissible exposure limits (PEL) of hazardous substance concentrations. Refer to OSHA standard 29 CFR 1910.1134, 1910.133 and 1926.62. NIOSH approved respirators, when properly fitted and used, significantly reduces, but does not completely eliminate, the breathing of contaminants by the respirator wearer. You may obtain better respiratory

protection from other types of respiratory protection equipment such as a valve operated pressure-demand airline respirator or a pressure-demand self-contained breathing apparatus respirator. Before using the NIOSH approved supplied-air respirator, be sure your employer has determined that airborne contaminants concentrations do not exceed those allowed by applicable OSHA, EPA, NIOSH or ACGIH regulations and recommendations for continuous-flow supplied air respirators. Federal law requires that your employer measure and monitor airborne contaminants levels in the work area. Improper respirator use may damage your health and/or cause death. Improper use may also cause certain life threatening delayed lung diseases such as silicosis, pneumoconiosis or asbestosis. DO NOT wear a NIOSH approved supplied-air respirator if any of the following conditions exist: \* Atmosphere is immediately dangerous to your life or health (IDLH); \* You CANNOT escape without the aid of the respirator; \* Work area contains less than 19.5% oxygen; \* Work area is poorly ventilated; \* Unknown contaminants are present, or; \* Contaminant concentrations are in excess of regulations or recommendations (as described above); \* You are untrained and unfamiliar with the operation, limitation, and maintenance of the respirator; \* The condition of the respirator is worn and/or damaged; \* Air supplied to the respirator is NOT confirmed to be "Grade D" quality breathing air; \* The breathing air supply is NOT monitored for carbon monoxide or other toxic gases. DO NOT wear a respirator until you have passed a complete physical exam (perhaps including a lung x-ray) conducted by a qualified medical personnel, and have been trained in the respirator's use, maintenance and limitations by a qualified individual (appointed by your employer) who has extensive knowledge of the respirator. DO NOT modify or alter the NIOSH approved supplied-air respirator in any manner. Use only MSHA/NIOSH approved respirator components and replacement parts manufactured for use with the respirator (hoses, flow control devices, capes, climate control devices, etc.). Failure to use MSHA/NIOSH approved components and replacement parts invalidate all warranties, and may cause death, lung disease or exposure to other hazardous or life threatening conditions. Inspect all components of the supplied-air respirator system daily for signs of wear, tear or damage that might reduce the degree of protection originally provided. Immediately replace worn or damaged components with MSHA/NIOSH approved components or remove the respirator from service. BE CERTAIN to check air filter and supplied-air respirator system hoses ARE NOT CONNECTED to in-plant lines that contain nitrogen, toxic gases, inert gases, acetylene or any other non-breathable, non-GRADE D air sources. NEVER use oxygen with air line respirators. NEVER modify air line connections to accommodate air filter/respirator breathing hose WITHOUT FIRST testing the content of the air line, and air source. FAILURE TO CONNECT TO THE PROPER AIR SOURCE MAY RESULT IN SERIOUS BODILY INJURY OR IMPAIRMENT, OR DEATH. DO NOT use a NIOSH Approved supplied-air respirator in poorly ventilated areas or confined spaces such as tanks, small rooms, tunnels, or vessels unless the confined space is well ventilated and the contaminant concentrations are below the upper limit NIOSH Recommended Exposure Limit (REL) recommended for the specific respirator. In addition, follow all procedures for confined space entry, operation and exit as defined in applicable regulations and standards, including 29 CFR 1910.146. Leave the work area immediately if: \* Any respirator component becomes damaged; \* Airflow into the respirator stops or slows down; \* Air pressure gauge drops below the minimum specified in the Breathing Air Pressure Table in the respirator owner's manual; \* Breathing becomes difficult; \* You become dizzy, nauseous, too hot, too cold, or ill; \* You taste, smell, or

see contaminants inside the respirator hood; \* Your vision becomes impaired. Historically, the incidence of disease from overexposure to toxic substances almost always occurs because the OSHA regulations and industry standards applicable to the work practices involved are not followed. It is, therefore, imperative that the employer / user acquaint themselves with and follow all of these standards and regulations. REMEMBER: Respiratory protection is but one component of safe work practices. To minimize the chances of overexposure, all safety regulations and standards must be followed. Respiratory protection is the last line of defense to be employed. The employer / contractor / user must first eliminate or minimize the levels of toxic substances in the work place by accepted engineering control measures. Assuming this action is conducted, and the employer/contractor/user do their part, the properly selected respirator should provide the wearer with an adequate degree of protection. Additional information can be obtained from the Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), and the National Institute for Occupational Safety and Health (NIOSH).

### **Blast Machine and Remote Controls**

NEVER OPERATE, SELL OR RENT AN ABRASIVE BLAST CLEANING MACHINE WITHOUT OPERATIONAL REMOTE CONTROLS. SERIOUS BODILY INJURY AND/OR IMPAIRMENT, DEATH OR PROPERTY DAMAGE COULD RESULT! Inspect and test remote controls prior to each work shift. Never modify or substitute a different brand replacement part on a specified manufacturer's blast machine remote control system. If remote control systems are altered, involuntary activation can occur which may cause serious personal injury, bodily impairment, death, or property damage. DO NOT substitute or use welding hose in place of the manufacturer specified remote control air hose. Remote control air hose is manufactured to stringent specifications. Welding hose internal diameters and compositions are UNSAFE, and are not compatible with blast machine remote control systems. PROTECT remote control and operating hoses from freezing. If a blast machine remote control system is to be operated in freezing or near freezing weather, install an anti-freeze injector or similar device on the remote control air supply. Freezing air temperatures may cause clogging at the remote control switch body and may cause involuntary activation of the remote controls. Never weld, grind, drill, or sand on the blast machine. Welding may affect the dimensional integrity of the pressure vessel and WILL VOID National Board Approval. Do not operate the blast machine if the pressure vessel has been damaged by fire. Take the blast machine out of service immediately and notify the state certifying authority. Never remove, replace or repair any item on the pressure vessel while it is under pressure. Do not operate the blast machine if there is a leak in the pressure vessel. Immediately take the vessel out of service and notify your state certifying authority. NEVER operate the blast machine above the maximum allowable working pressure (MAWP) at the maximum operating temperature (Fahrenheit) shown on the ASME nameplate attached to the blast machine. Immediately take the vessel out of service if the nameplate is not affixed to the blast machine and/or is missing. Blast machines are not insulated. Maintain safe clearances from electrical power lines. Install a grounding rod to the blast machine prior to blasting. DO NOT attempt to manually lift, move or tilt a blast machine containing abrasive. Use an approved forklift, crane or other specially designed device to move the blast machine.

### **Equipment Maintenance Warning**

Avoid serious bodily injury, impairment, severe illness, or death! Prior to performing maintenance, or correcting any system malfunction on the blast machine and related components, personnel are required to wear proper protective equipment including, but not limited to: face and eye protection; gloves; dust respirator (NIOSH approved supplied air respirators where required); ear protection; and full protective body clothing. Service and maintenance should only be performed by trained personnel familiar with the abrasive blast cleaning equipment. Observe all OSHA regulations, EPA guidelines, NIOSH and ACGIH recommendations. Do not service equipment within the vicinity of a blast cleaning operation. Remove the equipment to a safe work area free of airborne contaminants, toxins, and dust. Never perform service on an abrasive blast machine which is under pressure. The blast machine pop-up valve(s) should be fully retracted, and the pressure vessel chamber(s) completely depressurized. All air hose connections should be disconnected from the blast machine and air compressor before servicing the blast machine and related components. Place a notice sign at the disconnection point indicating service/maintenance work is being performed. If performing service on spring loaded valves, ALWAYS cage the valves BEFORE disassembling the valves. Regularly scheduled maintenance is the responsibility of the equipment owner and user. DO NOT service the blast machine, or any equipment, while under the influence of alcohol or any form of drug.

Prior to using any blast cleaning machine, cabinet and/or dust collector, all safety warning labels and the blast cleaning equipment owner's manual(s) must be read. If the equipment operator, or any assistants of the operator cannot read or thoroughly understand the information contained in the warning labels or owner's manual(s) contact your supervisor or safety department personnel. Translations of the warning labels and owner's manual(s) must be provided by the operator employer or user, for non-English speaking and/or illiterate personnel. It is the responsibility of the job contractor / blast operator employer to provide at no cost proper protective equipment to all job personnel prior to entering or working in an abrasive blast cleaning environment. A NIOSH approved supplied-air respirator, designed for abrasive blast cleaning, MUST BE WORN AT ALL TIMES in blast cleaning work environments, which may as a result of the blast cleaning process, contain toxic levels of dust containing silica, arsenic, cyanide or other toxins in the abrasive, or lead and other metals in the surface coating to be blast cleaned. The law requires that employers measure and monitor the airborne contaminant levels in the work area and immediate vicinity for all existing and potential contaminants. Accepted engineering control measures (i.e. enclosure or confinement of the operation, hepa dust filters, general and local ventilation, and substitution of less toxic abrasive materials) shall be incorporated to prevent atmospheric contamination. Warning signs MUST be posted at the job site warning of the possible airborne contamination and the requirement for proper respiratory protection. Failure to observe these steps may cause death and/or damage to your health, including certain delayed lung diseases such as silicosis, pneumoconiosis or asbestosis. Other work environment hazards may be present from contaminated water, adjacent coating application fumes, asbestos, chemicals, and engine exhaust (carbon monoxide). The law requires that all operators consult with their employers on the proper personal protective equipment and measures that MUST be taken to protect personnel within the work environment, and others that may be EXPOSED to blast cleaning work environment hazards. For additional information contact the State and local OSHA office.

OSHA REQUIRES protective safety equipment and clothing be used at all times FOR ALL PERSONNEL IN THE IMMEDIATE VICINITY OF THE ABRASIVE BLAST CLEANING AREA, including but not limited to: (1) Abrasive-resistant suit, leather gloves, safety shoes with nonslip soles, ear and eye protection; (2) NIOSH APPROVED supplied-air respiratory, designed for abrasive blast cleaning (Type CE, positive pressure/pressure demand), supplied by a source of breathing air that meets AT LEAST the requirements for Type 1 gaseous air described in the Compressed Gas Association Commodity Specification G-7.1 (Grade D or higher quality) as specified by Federal Law 42 CFR, part 84, Subpart J, 84.141(b), and the respiratory manufacturer. Air must be filtered and monitored for carbon monoxide and other toxic gases to assure clean, breathing air at all times. Adhere to NIOSH, EPA, ACGIH, OSHA recommendations, limitations, and regulations pertaining to approved respirator usage within permissible exposure limits (PEL) of hazardous substance concentrations. Refer to OSHA standard 20 CFR 1910.134, 1910.133, 1910.137, 1926.62, 1910.1000 and ANSI Z9.4 (Ventilation and safe practices of abrasive blasting operations). NIOSH approved respirators, (designed for abrasive blast cleaning), when properly fitted and used, in conjunction with adherence to OSHA regulations and industry standards, will provide a reasonable degree of protection to the wearer. The respirator significantly reduces, but may not completely eliminate, the breathing of contaminants depending on the work practices involved. Where concentrations of contaminants are excessive, respirator wearers may obtain a higher level of protection from other types of respiratory protection equipment such as a valve-operated, pressure demand airline respirator or a pressure demand, self contained breathing apparatus (SCBA) respirator. At this time there are no side by side field studies for comparison. However, OSHA does assign higher protection factors to these groups of respirators. Before using the NIOSH approved respirator (designed for abrasive blast cleaning), be sure your employer has measured and determined on a periodic basis that airborne contaminants concentrations inside the breathing zone do not exceed those allowed by applicable OSHA, NIOSH, ACGIH, EPA regulations and recommendations for continuous-flow supplied air respirators. Federal law requires that your employer measure and monitor airborne contaminants levels in the work area. Proper selection of respirators shall be made according to the guidelines of the American National Standard Practices for Respiratory Protection. Improper respirator use may damage your health and/or cause death. Improper use may also cause certain life threatening delayed lung diseases such as silicosis, pneumoconiosis or asbestosis. DO NOT wear a NIOSH approved supplied-air respirator if any of the following conditions exist: (1) Atmosphere is immediately dangerous to your life or health; (2) You CANNOT escape without the aid of the respirator; (3) Work area is poorly ventilated; (4) Unknown contaminants are present; (5) Contaminants are in excess of regulations or recommendations as described above for the respirator being used; (6) Atmosphere contains less than 19.5% oxygen; (7) You are untrained and unfamiliar with the operation, limitation, and maintenance of the respirator; (8) The condition of the respirator is worn and/or damaged; (9) Air supplied to the respirator is NOT confirmed to be "Grade D" quality breathing air; (10) The breathing air supply is NOT monitored for carbon monoxide and/or other toxic gases. DO NOT wear a respirator until you have passed a complete physical exam (if required including a lung x-ray) conducted by qualified medical personnel, and have been trained in the respirator's use, maintenance and limitations by a qualified individual (appointed by your employer) who has extensive knowledge of the respirator. DO NOT modify or alter the NIOSH approved respirator in any manner. USE only

MSHA/NIOSH approved respirator components and replacement parts manufactured for use with the respirator (hoses, flow control devices, capes, climate control devices). Failure to use

MSHA/NIOSH approved components and replacement parts invalidates all warranties, and may cause death, lung disease or exposure to other hazardous or life threatening conditions. Inspect all components of the respirator system daily for signs of wear, tear or damage that might reduce the degree of protection originally provided. Immediately replace worn or damaged components with MSHA/NIOSH approved components or remove the respirator from service. BE CERTAIN to check air filter and respirator system hoses ARE NOT CONNECTED to in-plant lines that contain nitrogen, toxic gases, inert gases, acetylene or any other non-breathable, non-Grade D air sources. NEVER use oxygen with air line respirators. NEVER modify air line connections to accommodate air filter/respirator breathing hose WITHOUT FIRST testing the content of the air line. FAILURE TO CONNECT TO THE PROPER AIR SOURCE MAY RESULT IN SERIOUS BODILY INJURY OR IMPAIRMENT, OR DEATH. Always locate compressors to prevent contaminated air (such as carbon monoxide from engine exhaust) from entering the air intake system. A carbon monoxide (CO) monitor should always be installed to ensure safe breathing air quality at all times. Follow and practice job site safety rules. Do not eat, drink, or use tobacco products in the blast cleaning area; Blast operators and other job site personnel should wash their hands and faces before eating, drinking or smoking; workers within the job site should shower before leaving the work site; workers should park their cars where they will not be contaminated with airborne contaminants (ie. silica) and other substances such as lead; workers should change into disposable or washable work clothes at the worksite; workers should change into clean clothes before leaving the worksite; contaminated work clothing should be properly treated (washed or properly disposed of) and never worn off the work site to home. Never remove the supplied-air respirator in the vicinity of the job site contaminated with airborne dust. Repair and maintenance work on equipment should be conducted at an off-site location free of hazardous dust and/or airborne contaminants.

**REMEMBER...SAFETY IS UP TO YOU!**

**YOU CAN PREVENT SERIOUS INJURY, ILLNESS OR DEATH!**