

FILE NAME: Allied Signal Bendix (ASB)

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DOCUMENT DESCRIPTION: Recommended Industrial Hygiene Practices for Respiratory Protection

Honeywell	HSE Management System Level 2 Standard	Document Owner		Al Shaw	
		Approved By		Evan Van Hook	
		Issue Date		August 30, 2008	
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1.0 APPLICABILITY

- 1.1 This procedure is applicable to all Honeywell organizations and majority owned subsidiaries worldwide. It establishes minimum requirements that must be met by all organizations.
- 1.2 In addition to complying with this procedure, organizations must ensure that they are in compliance with all applicable national, state, and local regulations.
- 1.3 Each Honeywell Strategic Business Group (SBG) must either adopt this procedure or develop its equivalent SBG procedure. The SBG equivalent procedure must be reviewed and approved by the corporate owner of this standard for equivalency.
- 1.4 Each Honeywell site or organization must customize either this procedure by using Attachment 6.1 or its SBG's equivalent procedure.
- 1.5 Sites requiring respirators or providing respirators (non-disposable) on a voluntary basis shall have a written Respiratory Protection Procedure. Exception: A Respiratory Protection Procedure is not required if the only respirators provided are disposable filtering facepiece respirators used on a voluntary basis.
- 1.6 The Respiratory Protection Procedure shall be administered by a person qualified through training and/or experience in respiratory protection principles and procedures.
- 1.7 Each Honeywell site or organization must review this procedure for any conflicts and/or additions with country requirements, and add additional country requirements to the appropriate organization's procedure.
- 1.8 Whenever a Honeywell Procedure supersedes the applicable national, state, and local regulations, the Honeywell Procedure shall apply.
- 1.9 Honeywell organizations that have determined that this procedure is not applicable to them do not need a site procedure on this topic. The organization must document in its SAT the rationale for determining that this procedure is not applicable.

2.0 OVERVIEW

- 2.1 Only Respirators provided or approved by Honeywell shall be used when necessary to protect employee health. This may occur in following types of situations:
 - 2.1.1 During emergencies;
 - 2.1.2 In situations where engineering controls have been shown to be infeasible for the control of a hazard;
 - 2.1.3 During interim periods before feasible engineering controls have been installed and passed the applicable commissioning tests;

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2.1.4 During interim periods when previously installed engineering controls are under repair.

2.2 The determination as to the need for respiratory protection and type of respiratory protection required will be based on the exposure assessment and monitoring performed in accordance with HSEMS 375. Conformance to HSEMS 375 and this procedure will ensure appropriate selection, use and maintenance of respirators for employee protection.

3.0 DEFINITIONS

3.1 Definitions for underlined text are found at the end of this document.

4.0 REQUIREMENTS

4.1 Responsibilities

- 4.1.1 Site Leader – Individual with overall responsibility for ensuring the Respiratory Protection Procedure is implemented and followed.
- 4.1.2 Line Supervision – Implement requirements of the Respiratory Protection Procedure as applicable to area of responsibility.
- 4.1.3 Employees – Responsible for complying with the organization's Respiratory Protection Procedure.
- 4.1.4 HSE Rep or Designee – The individual, who ensures that the site's Respiratory Protection Procedure is being carried out and systematically managed. Acts as the site's respiratory protection regulatory resource.

4.2 Use of Respirators at Customer Sites

- 4.2.1 In circumstances where Honeywell employees are working in a customers facility, and the use of respiratory protection is required, available respiratory protection devices may be used under the following conditions:
 - 4.2.1.1 The selection and use is based on an exposure assessment and monitoring.
 - 4.2.1.2 The employee is covered in the Honeywell Respirator program and has been fitted, tested, trained and received medical clearance for the applicable respirator.

4.3 Respirator Selection

- 4.3.1 All respirators shall be certified for their intended use by the National Institute for Occupational Safety and Health (NIOSH) or equivalent local jurisdictional testing authority.
- 4.3.2 Respirators shall be selected based on the potential hazards in the workplace. This shall include a reasonable estimate of employee exposure to respiratory hazards

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based on an exposure assessment which includes exposure monitoring. The respirator selected for employee use must maintain the employee's exposure to the hazardous substance at or below the Occupational Exposure Limit (OEL) as measured inside the respirator. The employee's exposure, when measured outside the respirator, may not exceed the maximum use concentration for that respirator and exposure under the conditions of use.

- 4.3.3 Assigned protection factors listed in Section 6.2 shall be used to select a respirator that meets or exceeds the required level of employee protection.
- 4.3.4 Respirators selected for IDLH atmospheres. See Section 4.3.5.
- 4.3.5 Respirators selected for protection against gases and vapors shall be either atmosphere-supplying respirators, or air-purifying respirators. Air-purifying respirators shall be equipped with canisters or cartridges with an end-of-service-life indicator (ESLI) designed and certified for removal of the contaminant; or if there is no ESLI, a canister or cartridge change schedule shall be established that ensures these air-purifying devices are changed before the end of their service life.
- 4.3.6 Respirators selected for protection against dusts, mists and aerosols, shall be either atmosphere-supplying respirators or air-purifying respirators equipped with filters designed and certified for removal of particulates.
- 4.3.7 Escape-only respirators selected for protection during emergency situations shall provide protection sufficient for maximum anticipated egress routes.

4.4 Medical Approval

- 4.4.1 Each organization shall ensure that each employee required wearing a respirator, or voluntarily wearing any respirator other than a filtering facepiece, has a valid medical clearance issued by a physician or licensed health care professional (PLHCP) prior to fit testing or respirator use. Medical clearance shall be documented and comply with applicable regulatory requirements and Honeywell Health Services Procedure HSEMS 535 Respiratory Protection Examination. See Section 5, related documents.

4.5 Fit Testing

- 4.5.1 All required air-purifying and air-supplying respirators shall be fit tested upon first issuance, prior to usage. Fit testing shall be documented and, subject to the limitations noted below, may be either a Qualitative Fit Test (QLFT) or Quantitative Fit Test (QNFT). Fit tests shall be repeated annually where respirators are required and biannually (every two years) where tight fitting respirator uses is voluntary. The Respirator fit testing method selected shall meet the requirements in Section 6.2 and 6.3, or equivalent country requirements. Fit test documentation must include the date,

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type of respirator, size, type of fit testing conducted who conducted the fit test, and the results (pass/fail). QLFT: Qualitative Fit Testing may only be used to fit test negative pressure air-purifying respirators that must achieve a Fit Factor of 100 or less.

- 4.5.2 QNFT: In order to successfully pass a Quantitative Fit Test, a minimum fit factor of 100 must be obtained for tight fitting half-face piece respirators and a minimum fit factor of 500 must be obtained for tight fitting full facepiece respirators.
- 4.5.3 Additional fit testing shall be required anytime a change in the employee's facial features (due to extensive dental work, facial scars, weight loss, etc.) could affect a proper fit. Additional testing may also be required if an employee fails his/her annual fit test, or as required by regulatory standards.
- 4.5.4 Employees shall perform user seal checks each time a tight-fitting respirator is used.
- 4.5.5 Facial hair that would be in contact with any respirator face seal or interfere with the functioning of any respirator exhalation valve shall be prohibited. See Section 6.4 for a diagram of acceptable facial hair when wearing a respirator.
- 4.5.6 Eyeglasses with temple bars or straps that interfere with any respirator face seal shall be prohibited. Special corrective lenses without temple bars or straps shall be provided as necessary inside full-face piece respirators.

4.6 Immediately Dangerous to Life or Health (IDLH) Atmospheres

- 4.6.1 All respirators selected for IDLH atmospheres shall be either full face piece pressure demand self-contained breathing apparatus (SCBA) certified by NIOSH, or equivalent local jurisdictional testing authority, for a minimum service life of thirty minutes, or combination full face piece pressure demand supplied-air respirators (SAR) with auxiliary self-contained air supply.
- 4.6.2 At least one standby person equipped with proper rescue equipment, including a Self-Contained Breathing Apparatus (SCBA), shall be present in the nearest safe area for emergency rescue of those wearing respirators in an IDLH atmosphere.
- 4.6.3 Communications (visual, voice, signal line, telephone, radio, or other suitable type) shall be maintained between employees in an IDLH atmosphere and the standby person(s).
- 4.6.4 Every reasonable effort should be made to avoid entry into a known or suspected IDLH atmosphere. Prior to entry into IDLH atmospheres, the operation shall be reviewed to determine the need for additional precautions, including applicable company and regulatory confined space entry permit requirements.

4.7 Training

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4.7.1 Employees required to use respirators during routine activities or in emergency situations shall receive the training described in Section 6.5.

4.7.2 Employees who are provided with filtering face piece respirators solely on a voluntary basis will receive the training contained in Section 6.6. A signed copy of the document shall be maintained in the employee's personnel file.

4.7.3 If an employee, who is not required to wear a respirator, is provided with or permitted to voluntarily wear a respirator, other than a filtering face piece respirator, that employee will receive the training contained in Section 6.5.

4.7.4 For employees required to wear respiratory protection, employee training and competency assessment shall be conducted and documented on an annual basis. Competency evaluations shall include an assessment of their ability to wear the respirator, perform user checks, and inspect the respirator for any signs of needed maintenance and any end of service life indicators.

4.8 Respirator Maintenance

4.8.1 Procedures and schedules shall be developed for the cleaning and disinfecting, storage, inspection, and repair of respirators used by employees. See Section 6.7 Respirator Inspections and Cleaning Procedure.

4.8.2 Frequency and Timing of Inspections: Respirators used in routine situations shall be inspected before each use and during cleaning. All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and checked for proper function before and after each use. Emergency escape-only respirators shall be inspected before being carried into the workplace for use. To the extent any SCBAs are not covered by the foregoing, they shall be inspected monthly.

4.9 Air Quality

4.9.1 Employees using atmosphere-supplying respirators (supplied-air and SCBA) shall be provided with breathing air of high purity meeting the requirements in Section 6.8.

4.10 Annual Program Review and Audit

4.10.1 Respiratory Protection Procedures shall be evaluated as part of the Corporate HSE audit –see attachment 6.9. The site HSE Rep or designee shall also conduct an evaluation as part of the annual HSE Self-Assessment (SAT). Annual evaluations and related corrective actions shall be communicated to appropriate levels of management, and documented in the SAT tool and Event Tracking System (ETS). The evaluation shall, at a minimum, include verification of implementation and consultation with employees to ensure respirators are properly utilized

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4.10.2 Record Retention

4.10.2.1 Records associated with this standard shall be retained as required by the schedule listed in Honeywell Records and Information Management (see [Section 5.3 Related Documents](#) for link).

5.0 REFERENCE DOCUMENTS

- 5.1 [Respiratory Protection Examination](#) HSEMS 535
- 5.2 [HSEMS 375, Exposure Assessment and Monitoring](#)
- 5.3 [HSE Records and Information Management](#)
- 5.4 Honeywell Occupational Exposure Limits (OELs)
- 5.5 ACGIH TLV's.

6.0 ATTACHMENTS

- 6.1 [Sample Site Level Respiratory Protection Procedure](#)
- 6.2 [Assigned Protection Factors and Fit Testing Methods](#)
- 6.3 [Respirator Fit Testing Protocol](#)
- 6.4 [Facial Hair Acceptance Criteria](#)
- 6.5 [Respirator Protection Training Content](#)
- 6.6 [Training Information For Voluntary Respirator Users](#)
- 6.7 [Respirator Inspection and Cleaning Procedure](#)
- 6.8 [Breathing Air Quality](#)
- 6.9 [Audit Checklist](#)

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7.0 REVISION LOG

Revision Number	Section Number	Revised By	Revision Date	Description of Change
00	All	Al Shaw; Corporate IH Steering Committee; L. Halprin, Keller and Heckmann LLC	July 9, 2008	Added: new definitions, responsibility section, sample site level procedure, attachments on fit testing protocols, cleaning and maintenance, and form to document voluntary use of respirators, requirement to select respirators based on assigned protection factors, and a new section on breathing air quality
00	All	Abhi Joshi		Converted standard to new format. No change in content or requirement number
01	Attach 6.8	Al Shaw	Feb 16, 2010	Removed 4.1.2–4.1.4 from Safe 46 and added to Respiratory Protection HSEMS 373 Attach 6.8 Breathing Air Quality.
02	4.5.1	Al Shaw	May 19, 2011	Changed wording in procedure as underlined: All <u>required</u> air-purifying and air-supplying respirators shall be fit tested upon first issuance, prior to usage. Fit tests shall be repeated annually where respirators are required and biannually (every two years) <u>where tight fitting</u> respirator uses is voluntary.

8.0 Definitions

Assigned Protection Factor (APF)	The level of respiratory protection that a respirator or class of respirators is expected to provide to trained wearers when properly fitted, worn and maintained. It is expressed as the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn. This factor is typically established by a government regulatory agency and includes a safety factor of 10. As a result, the minimum Fit Factor will be at least 10 times the APF.
End-Of-Service-Life Indicator (ESLI)	A device that warns the respirator user of the approach of the end of adequate respiratory protection; for example, that the filtration sorbent is approaching saturation or is no longer effective.
Fit factor	A quantitative estimate of the level of respiratory protection that a particular respirator would be expected to provide to a specific individual under the ideal conditions of a fit test. It is determined through a quantitative or qualitative fit test and expressed as the ratio of the concentration of a substance in ambient air to its concentration

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	inside the respirator when worn. The minimum Fit Factor will be at least 10 times the APF.
Immediately Dangerous to Life or Health (IDLH) Atmosphere	An atmosphere that poses an immediate or delayed threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere. Atmospheres where a short, one-time exposure (i.e., an acute exposure) may cause death or irreversible adverse health effects immediately, within a few hours, or within a few days or weeks are also considered IDLH atmospheres.
Maximum Use Concentration (MUC)	This is the maximum ambient concentration of a particular substance that an employee is permitted to be exposed to when wearing the designated respirator. The MUC is determined mathematically by multiplying the Assigned Protection Factor by the Occupational Exposure Limit (OEL) for the substance.
Occupational Exposure Limits (OEL)	Refers to mandatory, recommended (consensus) or company restrictions placed upon exposure. OELs are set at a level at which, based on available information, it is believed nearly all workers can be repeatedly exposed without adverse health effects. Where a mandatory OEL is absent or is less restrictive, the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV) shall be used to determine acceptability of exposures in the workplace. Honeywell has established internal OELs, which can be accessed at the following website: Honeywell OEL's
Physician or Other Licensed Health Care Professional (PLHCP)	An individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the medical approval services required for respirator users.
Qualitative Fit Test (QLFT)	A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.
Quantitative Fit Test (QNFT)	An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.
Respirators	Air-Purifying Respirator - A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants such as gases, vapors or particulate by passing ambient air through an air-purifying element.

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	Atmosphere-Supplying Respirator - A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units. Disposable Respirator - A respirator (commonly known as a filtering facepiece dust mask) that cannot be disinfected and, therefore, can be assigned to only one person. It is discarded after the end of its recommended period of use, after excessive resistance or physical damage, or when odor breakthrough or other warning indicators render the respirator unsuitable for further use. Escape-Only Respirator - Escape-Only Respirator - A respirator intended to be used only for emergency exit from a hazardous atmosphere.
Respiratory Protection Procedure	A written document describing worksite-specific respiratory hazards and procedures for respirator selection, fitting, use, maintenance and storage as well as procedures for respirator user medical evaluation, training and certification.
Service Life	The period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.
Tight-Fitting Face piece	A respiratory inlet covering that forms a complete seal with the face, for example, a re-usable, molded half-mask respirator equipped with filter cartridges.
User Seal Checks	Activities, typically positive and negative pressure checks, conducted by the respirator user to determine if the respirator is properly seated to the face.