Performance Materials

1. Health and Safety Policy

We are committed to providing a safe and healthy work environment for our employees and visitors, and protecting our neighbors from offsite impact. Our company promotes continuous improvement in these areas through certified management systems that include risk assessments, hazard mitigation, defined goals and objectives, management review meetings, incident investigation and robust compliance audits. We promote our belief that health and safety is as much a line responsibility as production and quality.

2. Product Safety Policy

We are committed to identifying and complying with all regulatory requirements regarding the handling, sale, and transport of our products. All products will be evaluated by product safety professionals to identify potential hazards. We clearly communicate potential hazards associated with our products to promote their safe use.

3. Environmental and Sustainability Policy

We are committed to protecting the environment and to sustainable production. Our company promotes continuous improvement in these areas through certified management systems that include environmental impact reviews, impact mitigation, annual goals and objectives, management review meetings, incident investigation and robust compliance audits.

We provide products that help reduce air pollution, provide safe drinking water, and reduce energy consumption. We set targets to increase recycling and the recovery of valuable resources from our internal production processes. We also provide services that recycle the scrap materials of others.

4. Purpose

Neo management is committed to complying with local regulations; this is the base level of performance we expect. Where those standards are not adequate to achieve our policy, we expect site management to outperform local requirements. When corporate management recognizes a need to ensure a higher level of performance, this document will be used to establish those standards.

5. Responsibilities

5.1. The Executive Management Committee (EMC) is responsible for strategic direction, final approval and promoting compliance.

5.2. Corporate HESS is responsible for coordinating the development of HESS standards and auditing compliance.

5.3. Line management is responsible for actively pursuing compliance with these standards. These duties include monitoring compliance and establishing priority-based action plans.

6. General Discussion

The major philosophy behind these standards is continual improvement. Line management must actively pursue total compliance, but it is recognized that excellence is created through deep commitment applied over time.

7. HESS Management Standards

7.1. Accident/Incident and Non-Conformity Investigations

7.1.1. Each covered facility will have a written investigation procedure.

7.1.2. Investigations will include root cause analysis.

7.1.3. The scope of investigations will include:

7.1.3.1. significant employee, visitor and contractor injuries and illnesses and near miss events,

An incident is "significant" if it required treatment by a physician. A near miss or first aid case is significant if it easily could have resulted in an injury that would require a physician's attention. This is a judgment call by the plant; the intent is to learn from incidents and to act before the hazard results in a medical treatment case.

A "near miss" is any unplanned event that involves a release or transfer of energy that could have caused a significant injury. It also includes an incident where a release or hazardous transfer of energy was narrowly avoided.

7.1.3.2. significant process incidents and near process incidents,

A "significant process incident" is an unplanned event in process equipment including: fires, explosions, chemical releases, rupture disc or relief valve venting, or any processing problems which results in a personnel injury.

A "near process incident" is an unplanned event in process equipment including: any process incident which could have resulted in a significant injury to plant personnel, a significant release, and an injury or property damage to a third party.

7.1.3.3. investigation of unintentional fires and explosions,

These events include unplanned fires that require extinguishment, unplanned situations where a material develops intense temperatures due to heat of reaction, when a metal powder flashes or catches on fire, and any fires that were intentionally ignited with the intent to cause harm or damage.

7.1.3.4. investigation of significant security incidents, and

"Security incidents" are events involving theft of company property, sabotage incidents, intruders and unauthorized tampering with computer systems.

7.1.3.5. investigation of significant environmental and near miss incidents,

"Significant environmental incidents" include releases that: are reportable to a governmental agency, impact the community, draw media attention, or result in a release of >2,000 kg of a chemical.

7.1.3.6. actual and potential non-conformities to a standard.

7.1.4. Corrective and preventive actions will be identified, documented and monitored for effectiveness prior to closure.

7.1.5. A system will be established to communicate lessons learned.

7.1.6. Periodically the site will analyze accident, incident and non-conformity data to identify and correct system deficiencies.

"Periodic analysis" of accident incident data should be done every year for larger facilities and the work should be used to help understand a site's exposures to set

meaningful objectives. Smaller facilities may not have enough incidents to make annual analysis meaningful, in which case every few years may be appropriate.

7.1.7. A system will be established for timely communication of major incidents to senior Neo management.

"Major incidents" must be reported to corporate Neo immediately. For this requirement, a major incident is one in which there is: serious injury or death, an accident that attracted media attention, an accident that may result in litigation, a "significant environmental incident" or a "significant process incident". The purpose of this standard is to ensure that senior management is aware of the incident, as well as to activate assistance from HESS, Legal and Corporate Communications. Accidents that result in lost time must be reported within 24-hours.

7.2. Contractor and Visitor Safety System

7.2.1. Each covered facility will have a written Contractor and Visitor Safety Procedure that addresses the elements of this standard.

7.2.2. All training required by this standard will be documented.

7.2.3. Visitors are either trained or escorted by plant personnel or trained contractors.

Visitors to the plant are those that come to the plant for a brief stay to conduct business at the plant. The plant can either train them or have a trained person escort them through the plant. A trained person would include Neo employees or contractors that have received a suitable orientation such that they know the hazards present, safety precautions required and emergency procedures.

7.2.4. Delivery personnel are trained, or their access is restricted to non-process areas.

Delivery personnel include any one that is transporting a commercial product to the plant. This includes truck drivers, train crews, ship crews, etc. If their delivery locations and walking routes do not expose them to a process hazard, they do not require an escort or special training. If there is a plant hazard or emergency scenario for which special training is required, training or escorts will be required.

7.2.5. Service contractors will be trained or escorted when in process areas.

Service contractors include personnel from a company that provides skilled work in an area of their expertise. Examples of service providers are: technicians performing

water treatment, calibration, analytical equipment repair and computer servicing.

7.2.6. Contracted labor will receive training and supervision that is suitable for hazards they face.

7.2.7. Project contracts are established that consider insurance coverage, hazard communication, training, work permits and safety.

7.2.8. Project contractors will be trained prior to initially starting the work.

Contractor training must cover plant hazards, site safety rules, work permit requirements, housekeeping and other applicable safety rules. The training does not have to be conducted by the plant; it can be conducted by a trained contractor, but the content must be defined by Neo.

7.2.9. A contractor selection process must be established that considers safety and environmental performance.

7.2.10. A method will be used for contractors to sign in and out of the plant.

In the event of an emergency evacuation, emergency personnel need to know what contractors are and are not accounted for; therefore, a system for logging in and out of the plant is required.

7.2.11. A system must be used to identify hazards associated with work conducted by visitors and contractors. (BSI-18001 4.3.1b)

8. Health Standards

8.1. Industrial Hygiene

8.1.1. A systematic exposure-hazard assessment will be conducted by a qualified professional.

A "qualified professional" is a person who by education or training is knowledgeable of the field of industrial hygiene. A "systematic exposure hazard assessment" is a process that evaluates the relative hazards of process materials (chemicals, metals, ...), the likelihood of the material becoming airborne in hazardous quantities, adequacy of existing control systems and then uses this information to set sampling priorities by homogeneous exposure groups. The review would also consider physical

agents such as noise, vibration, temperature extremes and radiation.

8.1.2. A system will be established to assess exposures from new processes, chemicals, and metals when they are introduced into the work area.

Prior to bringing a new raw material into the plant, it must be reviewed from an industrial hygiene perspective.

8.1.3. Homogeneous exposure groups will be established.

A "homogeneous exposure group" is a set of personnel whose work is so similar that their risk is essentially the same.

8.1.4. A priority-based sampling strategy will be maintained.

8.1.5. Adequate data to support statistical analysis will be collected.

The number of samples taken depends on the risk. Spot sampling may be useful to confirm that an exposure group that has an exposure with low severity or low likelihood of becoming airborne is truly not over-exposed. However, for more serious exposure potentials, enough samples should be taken to characterize the exposure using statistical techniques.

8.1.6. When available, field validated sampling methods will be used.

8.1.7. A system will be used to track corrective actions generated from the sampling data.

8.1.8. Engineering controls will be implemented to control exposures whenever feasible.

8.1.9. Engineering specifications will be developed for control systems, e.g. ventilation systems.

8.1.10. Preventive maintenance/inspection systems will be implemented to monitor control systems.

Engineering solutions, such as ventilation systems, should be designed to provide appropriate capture velocities. Like any equipment, performance will eventually degrade. The site must provide an inspection system and/or a preventive maintenance system to ensure the continued performance is in line with the engineering specification.

8.1.11. Results of monitoring tests will be communicated to affected personnel.

8.1.12. Exposure data will be retained in long-term records retention.

Exposure data should be retained for 30 years past the end of service of the youngest person exposed to that hazard.

8.2. Hazard Communication

8.2.1. Each covered facility will have a written, hazard-communication program that covers the elements of this standard. It will also include a hazard-determination procedure.

8.2.2. An inventory of hazardous chemicals, metals and alloys will be maintained.

For the purposes of this standard, a material will be considered hazardous if, through misuse, the material could result in a significant injury. Significant will be construed to mean an injury or illness that would require a doctor's care. There are various mechanisms that might cause a material to be hazardous such as flammability, radioactivity, reactivity, toxicity, corrosivity, and asphyxiant properties.

8.2.3. Safety Data Sheets are provided to employees for all hazardous materials.

SDS must be made available in the workplace. This can be in paper copy or digital form, but it must be readily accessible to workers.

8.2.4. Warning signs are provided for all tanks and vessels of hazardous materials.

8.2.5. Warning labels are attached to raw material containers or otherwise provided.

This standard requires a warning label to be attached to hazardous raw materials. It must state the hazard and basic precautions that must be taken. If a warning method is as effective as a warning label, then attaching the label to the raw material is not required. This might include signs in the immediate area that convey the name and hazard of each raw material in the area.

8.2.6. Personnel are trained on hazards and how to read a SDS.

8.2.7. Neo Performance Materials products will have warning labels.

8.2.8. SDSs will be provided with the first shipment to a customer and again when the SDS are updated.

9. Environmental Standards

None issued at this time.

10. Safety Standards

10.1. Control of Hazardous Energy (Lockout - Tagout)

10.1.1. Each covered facility will have a written lockout / tagout procedure that defines: scope of procedure, hazardous energy types, permit use, lock rules, tag rules, responsibility and authority, audits and training.

10.1.2. There will be a written permit system in which Operations grants permission to maintenance personnel or contractors to work on equipment. The permit will be used to communicate work completion status and to identify the people working on the job.

Studies have demonstrated that people have died and been severely injured when equipment is actuated while someone is working on the machine/process. While locks reduced the number of accidents that occurred, the data strongly suggests the need to communicate clearly. Permits are used as a common communication tool between Operations, maintenance and contractors. A key concept is that Operations (production) owns the equipment-- that they are normally best suited to prepare it for work; that before work begins, they must formally communicate that the equipment is ready to be repaired; and that they will not use the equipment during repair.

10.1.3. Whenever possible, zero energy state must be achieved prior to maintenance and servicing of equipment, and the energy must be isolated with locks. If the energy form can't be isolated with a lock, then lockout tags may be used.

10.1.4. Lockout locks must have only one key and be controlled by the person(s) working on the equipment. Locks may only be removed by the person applying the lock.

10.1.5. The process should have a step in which the personnel working on the equipment verify that the hazardous energies are properly isolated.

Rather than assuming that the production operator correctly isolated the equipment

from hazardous energy sources, personnel working on the equipment should verify that the energy has been locked out properly. This may include tracing the piping and checking that the right valve is locked out or pushing the "On" button to see if the equipment is truly isolated from energy. However, this verification step should only be attempted when personnel are in a safe area and would not be injured if the operator incorrectly isolated the energy.

10.1.6. When new equipment is purchased, or major modifications installed, the specified equipment will accept energy isolation devices.

Equipment design should include consideration of how the equipment will be locked out for routine servicing and repair. Energy isolating devices must accept a lock or lockout device so that the equipment can be isolated from hazardous energy.

10.1.7. Operators must have a system to return equipment to normal operating mode.

At the conclusion of work, the operators should restore conditions such as power and valve settings to normal operating mode. The standard requires a system. A common system is to document on the permit the location of the locks used to isolate the process so that the operator restoring the equipment to service mode knows how the original operator isolated the equipment from energy sources.

10.1.8. Audits of this process must be conducted at least annually, and corrective actions are to be developed and tracked to closure when non-conformities are noted.

10.2. Burning and Welding Hot Work

10.2.1. Each covered facility will have a written Hot Work Procedure that addresses the elements of this standard.

Hot work will be defined as work involving burning, welding, or a similar operation that is capable of initiating fires or explosions such as welding, heat treating, grinding, thawing a pipe, powder driven fasteners, hot riveting, etc. It does not apply to cooking and soldering irons. The factory can set up a fire area that does not require approval such as a maintenance shop, which is free of flammable materials and equipped with adequate firefighting equipment.

10.2.2. The site may establish designated areas, such as the maintenance shop, where a hot work permit is not required. These areas are to be designed for hot work and maintained in a fire safe mode. Although a permit is not required, personnel conducting hot work must inspect their area prior to hot work to ensure that it is still

essentially free of combustible materials and that there is a fire extinguisher nearby.

Designated hot work Areas will be defined as specific locations that are designed for hot work that is maintained fire-safe, such as a maintenance shop or outside detached location that is constructed of noncombustible or fire resistive materials and are essentially free of combustible and flammable contents and segregated from adjacent areas.

10.2.3. All work conducted outside of designated hot work areas will require a hot work permit at the start of the job and be valid for no more than 24 hours. A Designated Neo representative must sign the permit, indicating that they have personally verified that the appropriate precautions have been taken.

10.2.4. Hot work permits will include a checklist of the 21 items in the sample hot work permit in NFPA 51B, ANNEX A, 2014. It will also list the job to be done, people or group authorized to conduct the job, and the date and time that it is valid.

10.2.5. Site personnel that authorize Hot Work permits, fire watch personnel and personnel that may conduct Hot Work will be trained periodically on the site's procedure and use of the fire extinguisher equipment. Contractors will be trained on the need for Hot Work Permits during site orientation and the permit precautions will be reviewed prior to the start of work.

10.2.6. The designated Neo Representative will decide if a Fire Watch is required or not. Fire Watches will automatically be required where a significant fire could be ignited because:

10.2.6.1. Combustible materials are within 11 meters of the work.
10.2.6.2. Combustible materials are more than 11 meters away from the point of operation but are easily ignited by sparks.
10.2.6.3. Wall or floor openings with an 11-meter radius expose combustible materials in adjacent areas, including concealed spaces in walls or floors.
10.2.6.4. Combustible materials are adjacent to the opposite sides of partitions, walls, ceilings, or roofs and are likely to be ignited.

10.2.7. A minimum of one Fire Watch will be designated to ensure that safe conditions are maintained. They will be given the authority to stop work when unsafe conditions develop. The Designated Neo representative will determine how long the fire watch will monitor the area after the work is complete, but at a minimum it will be 30 minutes.

11. Process Safety

11.1. Vacuum Induction Melting Furnaces

11.1.1. **Relief Venting** – Each VIM furnace will have a relief device that has been designed to handle a steam explosion and it will be directed away from personnel.

11.1.2. **Emergency Cooling Water** – Each VIM Furnace must have an emergency cooling system that actuates in the event that the primary system fails. A suitable preventive maintenance system will be established to ensure readiness.

11.1.3. **Emergency Response** – A written emergency response procedure must be implemented for each type of VIM furnace. Furnace operators will be trained on the symptoms of an emergency upset condition and how to respond.

11.1.4. **Cooling Water Loops** – Each VIM furnace cooling water system must have a low water pressure alarm in the water supply, a high temperature sensor in the water return line, and it must be designed as an interlock to the control system. The induction power supply cooling water system must be separate from the main process cooling water system; the power supply company gives the cooling water standard including the quality (impurity, pH, etc.) temperature and pressure limitation.

11.1.5. **Non-Flammable Hydraulics** – The VIM furnace hydraulic fluid must be non-flammable. A physiochemical test must be conducted on the fluid periodically and the fluid replaced based on the testing results.

11.1.6. **Crucible Preparation** – The consumables used for VIM furnaces must be standardized, including drawings of the crucible, criteria for ram materials, fiber blankets, etc. Each VIM furnace must have a crucible rebuild SOP, and operators must be properly trained, and SOPs updated periodically to ensure the document is effective.

11.1.7. **Arcing Standard** – There must be a procedure to "quickly respond to arcing" in the SOP that explains how to adjust the furnace power setting when the metals are arcing close to the crucible. The intent is to eliminate high temperature reactions and damage to the crucible.

11.1.8. **Redundant Pressure Gauges** – Each VIM furnace should have redundant pressure gages (electronic and mechanical) in the event that a vacuum gage fails. A suitable preventive maintenance system will be established to ensure the gages are in good

working condition.

11.1.9. **Ground Fault Protection for the Coil and Metal Leak Detection.** All VIM power supplies must be equipped with ground fault detection which will immediately disconnect power to the coil and trip the main disconnect of the power supply in the event of a short to ground. All VIM furnaces must contain a metal leak detection system which will immediately disconnect power to the coil and trip the main disconnect of the power supply in the event of a metal leak from the crucible in the backing material.

11.1.10. **Preventing Bridging** – All VIM furnaces should be equipped with a system to break up a bridging situation in the melt crucible so that an optical temperature of the melt may be obtained. This element does not apply to jet casters using high purity raw materials.

Approved by the Neo Executive Committee.
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