

## Environmental Health Newsletter

### Animal Feed Products Exposures

Loss Control staff should be familiar with food products liability exposures and controls, principals of HAACP, and survey topics as outlined in the Edible Products Survey form (LCS 924) which we currently use when prospecting food processors. We sometimes are requested to perform surveys for animal feed manufacturers and staff needs to be aware of product liability issues associated with this industry as well.

Like some food products, animal feeds fall under the jurisdiction of FDA (Food and Drug Administration). FDA regulates feed for cattle, poultry, horses, pigs, sheep, fish and other livestock as well as pet food for dogs and cats. FDA does not approve feed before it is marketed but it does approve the additives and drugs that are used in feed products. FDA requires that all animal feed meet three basic requirements. These are:

- Feed is truthfully labeled
- Feed does not contain unsafe additives or contaminants
- If feed contains drugs, the drugs must be approved by FDA for use in animal feed

The types of drugs that may be used in feed include

- Antimicrobials such as antibacterial drugs) to fight infections
- Anticoccidials to fight coccidial parasites
- Hormonals to suppress estrus (the female "heat" cycle) in cattle
- Anthelmintics to fight parasitic worms

- Sulfonamids to fight certain types of infections
- Beta agonists to promote leanness in animals raised for meat
- Anti-bloating drugs to prevent swelling of the stomach compartments or intestinal tract of cows caused by excessive gas

FDA is responsible for assuring that animal drugs and medicated feeds are not only safe and effective for animals, but that food products from treated animals are safe for humans to consume. This safety responsibility includes making sure that drugs used in medicated feed do not leave hazardous residues in human foods, such as milk, meat, and eggs and do not contribute to antimicrobial resistance.



### Mad Cow Disease

Mad Cow Disease or bovine spongiform encephalopathy (BSE) has been a major concern in the cattle industry in recent years. The disease is caused by feeding cattle related proteins to other cattle. In April 2008, FDA issued a final regulation barring certain cattle materials from all animal feed, including pet food. The banned materials are the cattle tissues that have the highest risk for carrying the agent thought to cause BSE. When looking at an animal feed producer we need to ensure that cattle related proteins

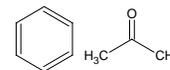
and byproducts are not added to the feeds.

### Horse Feeds

The main risks associated with production of animal feed are cross contamination of one feed with another and contamination of ingredients with the wrong medications. If a number of feeds for different animal groups are produced, this is a potential concern. Horses are highly susceptible to poisoning from Rumensin which is a medication used to control certain protozoa in cattle. If horse feed contains this medication it can be fatal. Controls to prevent cross contamination of feeds are critical. Much like allergen control in human foods, production sequencing can be used to ensure no products are accidentally mixed. Horse feeds can be produced before any cattle feeds when the equipment is clean. If cattle feeds are produced first, then the equipment has to be thoroughly cleaned before the horse feed is made.

### Mold

Another concern with animal feeds is mold contamination. Aspergillus contaminated feed can pose a hazard for aflatoxins. These toxins are extremely hazardous and cause liver damage and cancer. FDA has a legal limit of less than 20 parts per billion in animal feeds. To prevent this problem, only the highest quality grains should be used in the feeds. Mold is a problem in damp grains. Incoming grains can be tested for mold. Often a visual inspection is done involving use of a black light. The light will reveal some types of mold.



## Environmental Health Newsletter

## June 2010

### Product Recall

Samples of each batch of feed should be maintained so they can be tested to verify contents if there is ever a problem. A product recall program should be in place and each bag of feed should have some sort of mark or label so it can be traced back to the batch sheets and ingredients.

### Feed Producer Surveys

The Edible Products Survey form is not applicable to animal feed producers although there is overlap in quality control, labeling and recall aspects. When performing an animal feed survey, use the regular products liability survey form (LCS 931). Many sections of the form are not applicable. Narrative descriptions of exposures and controls can be made on the form. Important information that should be obtained during the survey includes:

- Description of operations, \$ sales, scope of products, where sold, customers, etc.
- Are there any medicated feeds or products?
- Does the facility have an FDA License?
- Are there inspections by FDA, or others?
- Does the facility have a FDA Animal Feed Safety System in Place?
- What BSE (bovine spongiform encephalopathy, "mad cow" disease) controls are in place?
- Who are the suppliers? Are Certificates of Analysis (COAs) used? Are periodic audits of suppliers of COAs conducted?
- Is the material susceptible to any contamination? Is there additional assurance testing?

- What receiving inspection procedures are in place?
- What are the storage procedures - labeled bins, designated bins, clean-out between receipt of different shipments, what else is stored with or near materials?
- Who is responsible for QC and what is their experience?
- Are there written SOPs?
- What are the critical steps to the process?
- How does the risk ensure the proper medication and right amounts of medication are added to the feed?
- Are the mix times adequate?
- Are there cross contamination possibilities that need to be controlled?
- Is this a simple mix operation or are there special processes such as pelletizing?
- Are there QC checks done on the equipment; how and how often?
- Is equipment specified for particular production runs or products? What are the clean-out steps and when it clean-out done?
- Who prepares labels; how are labels verified; are checks done to assure the correct label is on the product?
- Are records of important steps in receipt, production, distribution maintained? How are records maintained?
- How is material transported? Are special precautions needed? Is there a need to have clean-out between transport?
- Are there procedures for identifying and controlling product that is not sold, used, or fed?
- What are the recall procedures?

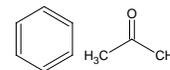
- Are there establish procedures to periodically conduct internal inspection and audit of control systems and test results?
- Is there a complaint file and review, evaluation, and implementation of corrective actions when problems are identified? Does the company need to provide notification of a corrective action [such as recall] to a regulatory agency?
- Is there establish criteria that assures the individuals are trained and understand their responsibilities?

### Globally Harmonized System

You may have heard bits and pieces about some upcoming changes to OSHA's Hazard Communications Standard (HCS) involving the Globally Harmonized System (GHS). We need to be aware of these changes and work with insureds on issues related to Hazard Communications and MSDSs with this updated standard.

Currently, many different countries have different systems for classification and labeling of chemical products. In addition, several different systems can exist between regulatory agencies. This situation has been expensive for governments to regulate and enforce, costly for companies who have to comply with many different systems, and confusing for workers who need to understand the hazards of a chemical. Benefits of GHS include:

- Promoting regulatory efficiency
- Facilitating trade
- Easing compliance
- Reducing costs



## Environmental Health Newsletter

## June 2010

- Providing improved, consistent hazard information
- Encouraging the safe transport, handling and use of chemicals
- Promoting better emergency response to chemical incidents
- Reducing the need for animal testing

In September 2006, OSHA published an Advanced Notice of Proposed Rule Making concerning GHS, and the OSHA Hazard Communications standard. In September 2009, the Notice of Proposed Rule Making was published. The primary impact of revising the HCS to adopt the GHS would be on compliance obligations for producers of hazardous chemicals. The modifications to the HCS would involve a reclassification of these chemicals per GHS criteria, as well as preparation and distribution of new labels and revised SDS (Safety Data Sheets). The primary change in workplaces where chemicals are used but not produced would be to integrate the new approach into the workplace hazard communication program, including assurance that both the employers and employees understand the pictograms and other information provided on the SDS and labels.

### Changes to Hazard Communications

Hazard classification will change with implementation of GHS. Specific criteria for classification of health and physical hazards, as well as classification of mixtures will follow GHS guidelines. Chemical manufacturers and importers will be required to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. These are standardized according

to GHS. Precautionary statements must also be provided. GHS uses the term Safety Data Sheet (SDS) instead of Material Safety Data Sheet (MSDS). All SDS will now have a specified 16-section format which must include:

#### 1. Identification

- Product identifier used on the label
- Other means of identification
- Recommended use of the chemical and restrictions on use
- Name, address, and telephone number of the manufacturer, importer, or responsible party
- Emergency phone number

#### 2. Hazard(s) identification

- Classification of the chemical in accordance with GHS
- Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with GHS
- Unclassified hazards (e.g., combustible dust or dust explosion hazard)
- Where an ingredient with unknown acute toxicity is used in a mixture at a concentration > 1%, a statement that x percent of the mixture consists of ingredient(s) of unknown toxicity is required

#### 3. Composition/information on ingredients

- Chemical name
- Common name and synonyms
- CAS number and other unique identifiers
- Impurities and stabilizing additives

#### For Mixtures

The chemical name and concentration or concentration ranges of all ingredients which are classified as health hazards. Where a trade secret is claimed, a statement that the specific chemical identity and/or percentage of

composition has been withheld as a trade secret is required.

#### 4. First-aid measures

- Description of necessary measures, subdivided according to the different routes of exposure
- Most important symptoms acute and chronic
- Indication of immediate medical attention and special treatment needed

#### 5. Fire-fighting measures

- Suitable (and unsuitable) extinguishing media
- Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products)
- Special protective equipment and precautions for fire-fighters.

#### 6. Accidental release measures

- Personal precautions, PPE, and emergency procedures
- Methods and materials for containment and cleaning up

#### 7. Handling and storage

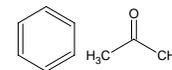
- Precautions for safe handling
- Conditions for safe storage, including any incompatibilities

#### 8. Exposure controls/personal protection

- OSHA PEL and any other exposure limits used or recommended by the chemical manufacturer, importer, or employer preparing the SDS
- Appropriate engineering controls.
- Individual protection measures, such as PPE

#### 9. Physical and chemical properties

Appearance (physical state, color, etc.), odor, odor threshold, pH, melting point/freezing point, boiling point, flash point, evaporation rate, upper/lower flammability or explosive limits, vapor pressure,



## Environmental Health Newsletter

## June 2010

vapor density, solubility, auto-ignition temperature, decomposition temperature, viscosity

### 10. Stability and reactivity

- Reactivity
- Chemical stability
- Possibility of hazardous reactions
- Conditions to avoid (e.g., static discharge, shock, or vibration)
- Incompatible materials
- Hazardous decomposition products

### 11. Toxicological information

Description of the various toxicological (health) effects and the available data used to identify those effects, including:

- Information on the likely routes of exposure
- Symptoms related to the physical, chemical and toxicological characteristics
- Delayed and immediate effects and also chronic effects from short and long term exposure
- Numerical measures of toxicity

### 12. Ecological information (Non-mandatory)

- Ecotoxicity (aquatic and terrestrial)
- Persistence and degradability
- Bioaccumulative potential
- Mobility in soil
- Other adverse effects

### 13. Disposal considerations

**(Non-mandatory)** Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

### 14. Transport information (Non-mandatory)

- UN number and UN proper shipping name
- Transport hazard class
- Packing group, if applicable
- Environmental hazards
- Special precautions which a user needs to be aware of, or

needs to comply with, in connection with transport or conveyance either within or outside their premises.

### 15. Regulatory information

**(Non-mandatory)** Safety, health and environmental regulations specific for the product in question

### 16. Other information, including date of preparation or last revision

The date of preparation of the SDS or the last change to it

Many MSDSs currently in use aren't very useful. They are old and out of date, provide general information that isn't very useful or do not supply all the necessary information to understand the hazards and measures required to provide employee protection. GHS includes definitions for hazard groups along with specific hazard statements, signal words and pictograms that are required on labels and SDSs. Substances will be categorized in the following health hazard classes:

- Acute toxicity
- Skin corrosion/irritation
- Serious eye damage/eye irritation
- Respiratory or skin sensitization
- Germ cell mutagenicity
- Carcinogenicity
- Reproductive toxicity
- Specific target organ toxicity - single exposure
- Specific target organ toxicity - repeated exposure
- Aspiration hazard

In addition, there are specific classification rules for chemical mixtures for each health hazard class.

Substances will be categorized in the following physical hazard classes:

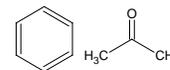
- Explosives
- Flammable gases

- Flammable aerosols
- Oxidizing gases
- Gases under pressure
- Flammable liquids
- Flammable solids
- Self-reactive substances and mixtures
- Pyrophoric liquids
- Pyrophoric solids
- Self-heating substances and mixtures
- Substances and mixtures which, in contact with water, emit flammable gases
- Oxidizing liquids
- Oxidizing solids
- Organic peroxides
- Corrosive to metals

### Information and training

The GHS does not address training. However, the proposed HCS will require that workers are trained within two years of the publication of the final rule to facilitate recognition and understanding of the new labels and safety data sheets.

Loss control staff should be aware of these changes. We may be asked to assist our insureds with updating their programs and training when these standards go into effect. No target date is set at this point and OSHA is still holding hearings but many companies are already updating SDSs and their Hazard Communication Programs in anticipation of these changes.



Example of GHS hazard categories, criteria, symbols, signal words and hazard statements for flammable liquids that will be required for SDSs and labels.

Hazard category	Criteria	Hazard communication elements	
1	Flash point < 23 °C and initial boiling point ≤ 35 °C.	Symbol	
		Signal word	Danger
		Hazard statement	Extremely flammable liquid and vapour
2	Flash point < 23 °C and initial boiling point >35 °C.	Symbol	
		Signal word	Danger
		Hazard statement	Highly flammable liquid and vapour
3	Flash point ≥ 23 °C and ≤ 60 °C.	Symbol	
		Signal word	Warning
		Hazard statement	Flammable liquid and vapour
4	Flash point > 60 °C and ≤ 93 °C.	Symbol	No symbol used
		Signal word	Warning
		Hazard statement	Combustible liquid