

**Household Hazards**  
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Dogs and cats are curious by nature and love to investigate new sights, sounds, and smells. However, this curious behavior can get them into sticky and sometimes smelly situations. The following are a list of agents around the house that pets are commonly exposed to.

**ABSORBENTS**

**Silica gel** come in packets or tiny canisters and can be found in purses, shoe boxes, or medication bottles. Silica gel is considered inert, but if enough of the desiccant is ingested, it could potentially draw enough moisture into the gastrointestinal (GI) tract and cause diarrhea. Signs may consist of mild GI and possible foreign body obstruction if the packet or canister is ingested.

**Deoxidizers** come in packets and tiny canisters and are generally found in food products such as jerky. Deoxidizers contain iron which can be caustic and irritating to the GI tract. The iron content can range from 30-60%. Once the package of food has been opened and exposed to air, the iron is oxidized. Iron oxide is considered inert and not absorbed by the GI tract, so it poses a low risk for toxicity.

**BATTERIES**

**Alkaline batteries** generally contain potassium hydroxide which can be very corrosive. Corrosive damage occurs when dogs and cats bite into these batteries. Corrosive effects may occur to the oral and esophageal mucosa which may lead to esophageal perforation. There is also the risk of foreign body obstruction when pieces of the battery or the entire battery is ingested. These batteries also contain zinc and although zinc toxicity is unlikely, it is possible if the zinc leaches out of the casing if the battery is not removed from the GI tract. Because the contents in the battery are alkaline, signs can be delayed up to 48 hours. Signs may include vomiting and diarrhea, both possibly with blood that may appear bright red or dark in color depending on where the bleeding is occurring in the GI tract. Oral irritation may include pain, redness, swelling, or ulcers in the mouth. Signs may also include drooling, dropping of food, anorexia, difficulty or increased swallowing.

**COINS**

**Pennies** minted since 1983 contain > 99% zinc. Zinc is leached from pennies by the acids in the stomach, where it is then absorbed into the circulation, and causes intravascular hemolysis. Common clinical signs of penny ingestion are vomiting, depression, anorexia, hemoglobinuria, diarrhea, weakness, collapse and icterus. Secondly, acute renal failure may develop. Radiography of the abdomen may reveal the presence of coins.

**SOAPS, CLEANERS, AND DETERGENTS**

**Toilet water**

Toilet water products typically contain anionic/nonionic detergents, cationic detergents, bleach, and/or acids. Once the toilet has been flushed a few times, the concentration of the product in the water is

very low and diluted. Generally, animals that drink toilet water may develop stomach upset (nausea and vomiting), which can easily be managed at home. If the pet licks or ingests the cleaner directly, there is a risk for corrosive injury depending on the pH of the product. Certain toilet cleaners can be very acidic or alkaline which could lead to significant GI upset and corrosive injury to the mouth and the rest of the GI tract.

### **Bleach**

Household bleach generally contains 3-6% sodium hypochlorite and it is used in washing machines and cleaning around the home. Household bleaches are mild to moderate irritants. Signs from an oral exposure cause mild and self-limiting vomiting and diarrhea. Low risk for mild oral or esophageal irritation. Bleach can also cause respiratory irritation and there is a risk for aspiration if the pet vomits after drinking bleach. If the bleach is splashed in the eyes or on the skin, ocular and dermal irritation are also possible.

**Anionic/nonionic** detergents are found in shampoos, handwashing soaps, soap bars, and most cleaners. These detergents do not pose a risk for corrosive injury. GI upset is possible and there is a risk for aspiration if the animal vomits.

**Cationic** detergents are found in electric dishwashing soap, fabric softeners, fabric dryer sheets, laundry detergents, and some potpourri oils. Cationic detergents are more toxic than anionic/non-ionic detergents and can cause significant corrosive injury. The severity of injury depends on the concentration of the cationic detergent and the duration of contact. Systemic toxicity of cationic detergents consists of central nervous system depression, coma, seizures, hypotension, muscular weakness and fasciculations, collapse, pulmonary edema, and metabolic acidosis; the mechanism of these signs is not known.

### **GLUES**

**Cyanoacrylate adhesives** are also known as superglues. These glues can mildly be irritating on contact and cause gastrointestinal upset. Glue that is adhered to the tooth, lip, or mucosa will fall off with time. Dried glue that is ingested may cause stomach upset, but is unlikely.

Pets exposed to superglues can typically be monitored at home. Offering water and food can dilute and help remove adhered glue from within the mouth. Manage any gastrointestinal signs that may develop. Dermal exposures can be managed with dermal decontamination for sticky substances. However, the dried glues may not come off and may have to fall off naturally.

**Polyurethane expanding** adhesives can be very toxic to pets even with small amounts.

Common ingredients found are isocyanates or diisocyanates (e.g. Gorilla Glue®, Elmer's ProBond®). When the product is ingested by an animal it mixes with the free fluid in the GI tract and expands to become a large foreign body. The foreign body can grow so large that it can form a cast of the gastric lumen. Signs generally occur within 12 hours of the exposure, and may include depression, vomiting, abdominal pain and distension.

### **ETHYLENE GLYCOL**

**Antifreeze** is one of the most common sources of ethylene glycol poisoning in domestic animals. Ethylene glycol is rapidly and almost completely absorbed from the GI tract and undergoes metabolism

in the body. It is metabolized to glycolaldehyde to glycolic acid to glyoxylic acid to oxalic acid. The metabolites of ethylene glycol result in toxicosis. Ethylene glycol affects the gastrointestinal tract and central nervous, cardiopulmonary, and renal systems. Clinical signs are generally categorized into 3 stages. However, clinical signs frequently change throughout the course of the toxicosis, signs can overlap between stages, some animals will not experience each stage, and death can occur at any stage.

**Stage 1 Neurologic phase:** This stage generally begins within 30 minutes, lasting up to 12 hours, and resembles an alcohol toxicosis. Clinical signs can include ataxia, disorientation, stupor, polyuria/polydipsia, or hypothermia (especially cats). Vomiting is also common because ethylene glycol irritates the gastric mucosa. The animal may appear to partially or fully recover over 3-6 hours. By 6 to 12 hours, neurologic status may worsen due to severe metabolic acidosis from the ethylene glycol metabolites. Marked depression, stupor, coma, and seizures are possible.

**Stage 2 Cardiopulmonary:** This stage generally occurs 12-24 hours following the exposure. During this stage severe metabolic acidosis and electrolyte disturbances take place causing tachypnea, tachycardia, depression, seizures, and pulmonary edema.

**Stage 3 Oliguric renal failure:** This stage can occur as early as 12 hours, especially in cats, but generally within 24 to 72 hours following exposure. During this stage formation of calcium oxalate crystals occurs in the renal tubules, causing renal damage. Clinical signs may include azotemia, depression, anorexia, vomiting, abdominal pain, and oliguria progressing to anuria.

**Spackle** is used to fill cracks and small holes in plaster and wood. It can contain ingredients such as calcium carbonate, agricultural limestone, silicon dioxide, and ethylene glycol. The ethylene glycol content can vary between products. Products containing <5% ethylene glycol are generally not a concern unless a large amount is ingested.

**Paint** can be water based, oil based (linseed oil), or solvent based (mineral spirit or turpentine). Paints also contain pigments, binders, and some can contain ethylene glycol. Like spackle, paints containing <5% ethylene glycol are generally not a concern unless a large amount is ingested. Water based paints are mildly irritating and can cause gastrointestinal upset. Oil based paints can also cause gastrointestinal upset but can have a laxative affect, so diarrhea and greasy stools are more common. Solvent based paints can be irritating, can cause gastrointestinal upset, and there is a risk for aspiration if the pet vomits.

## **HYDROCARBONS**

**Petroleum distillates** are a type of hydrocarbon that can be found in paints, paint removers, varnishes, furniture cleaners and polishes, engine cleaners and degreasers, lamp or torch oils, and charcoal lighter fluid. Common names can include tar, paraffin wax, lubricating oil, kerosene, gasoline, mineral spirits, or naphtha. Petroleum distillates can be irritating to the skin and oral cavity. Oral exposures cause vomiting, aspiration, diarrhea, and central nervous system depression. Aspiration of the petroleum distillate is the largest concern when pets are exposed. The more volatile the petroleum distillate is, the greater the potential for aspiration. Dermal exposures can cause a defatting of the skin resulting in cell membrane damage. Signs of a dermal exposure consist of redness, swelling, pain, crying, favoring a limb, and possibly bruising. Some animals will rub their face on the floor or on objects if their mouth/muzzle was exposed.

## PESTICIDES

**Rodenticides** are a form of pesticide used to kill rodents and are one of the most common poisonings in veterinary medicine. Rodenticides come in various forms such as pellets, blocks, chunks, place packs (paper packs filled with bait that the rodents are to chew into), soft bait pouches (plastic pouches that are filled with a paste like material), dusts, and tracking powders which can be absorbed dermally. Rodenticides come in many colors such as blue, green, red, tan, gray, or white and are generally mixed with seeds or are grain based to attract the rodents. Rodenticides cannot be identified by shape or color. Always have owner provide information directly from the package if possible. Do not rely on internet images as this may keep the pet from having the appropriate care. Each class is unique in that it affects the body in different ways, and the treatments are specific for each type.

**Anticoagulants** are meant to cause internal bleeding by inhibiting the recycling of vitamin K 1, 2, 3 epoxide reductase in the liver which is necessary to produce clotting factors. Generally, 3-7 days are required before clotting factors are exhausted and clinical signs are seen. Symptoms include lethargy, anorexia, exercise intolerance, weakness, lameness, bruising, dyspnea, seizures, and death.

**Bromethalin** is a neurotoxin that uncouples oxidative phosphorylation in the central nervous system and liver mitochondrion, which leads to decreased production of energy in the cells, so the levels of ATP are also decreased. Without ATP, the pumps in the cell membrane are unable to pump sodium out of the cell. Sodium builds up in the cell and water is pulled in causing the cell to swell. The neurological signs develop from the increased pressure on the axon and increase cerebrospinal fluid pressure which is caused by the edema and vacuoles in the myelin sheath that surrounds the nerve cells.

There are two types of clinical syndromes that can develop with bromethalin exposures. One is the convulsant or acute syndrome that usually occurs when massive ingestions take place at high doses (at or above the LD<sub>50</sub>). Signs generally appear within 10 hours and include agitation, depression, hind limb paresis, tremors, seizures, and death. Generally, cats who are exposed to bromethalin develop this syndrome.

The second syndrome is known as the paralytic or chronic syndrome which is seen at lower doses. At lower doses, the clinical syndrome is gradual and progressive. Signs can take up to 96 hours to develop and last up to 12 days. Generally, these animals fully recover, or they can have mild permanent impairment. Signs of this syndrome are vomiting, depression, ataxia, rear limb paresis, tremors, and recumbency. Animals that develop this syndrome may recover which is positive, but those animals that develop the convulsant syndrome generally do not recover and either die from the neurological signs or are euthanized.

**Cholecalciferol** is metabolized in the liver to calcifediol and then metabolized in the kidney to calcitriol which is the active metabolite. The active metabolite increases intestinal absorption of calcium, stimulates bone reabsorption of calcium, and increases renal tubular reabsorption of calcium and the release of phosphorus and calcium into the blood. This leads to metastatic calcification. Calcification of the renal tubules can lead to acute renal failure, but any soft tissues can be affected (e.g. gastrointestinal tract, lungs, aorta and heart). Renal failure results from vasoconstriction and renal ischemia (is the deficiency of blood in one or both kidneys or nephrons, usually due to functional constriction or actual obstruction of a blood vessel.) secondary to hypercalcemia, as well as deposits of calcium.

The onset of signs generally occurs 12 to 36 hours after ingestion and may include vomiting and diarrhea (possibly with blood), weakness, lethargy, depression, polyuria, and polydipsia. Hyperphosphatemia can occur within 12 hours. Hypercalcemia and azotemia (acute renal failure) can occur in as little as 24

hours. Later signs – animal stops producing urine and if the animal survives, there are long term effects in relation to the calcification of the tissues which is minimally reversible. Sudden deaths have been reported from cardiac arrhythmias or rupture aortas from calcified heart muscles and vessels. Decreased renal, gastrointestinal and musculoskeletal function can be a permanent sequela or secondary result. Young animals and animals with pre-existing renal disease are more susceptible.

### **Ant and Roach Baits**

Ant and roach baits are also referred to as hotels, traps, or stations. The insecticides used most commonly in these baits are sulfluramid, fipronil, avermectin, boric acid, and hydramethylnon, all of which are of low mammalian toxicity and present in very low concentrations within the baits. The baits also contain inert ingredients such as peanut butter, breadcrumbs, fats and sugar to attract the insects and sometimes are attractive to pets. Ingestion may cause GI upset and there is a risk of foreign body obstruction from the plastic. These ingestions can be managed at home. Decontamination by inducing emesis is not needed unless multiple avermectin-based ant baits are ingested by a small dog or an ivermectin sensitive breed (ABCB1), or if a large amount of plastic was ingested and the risk of a foreign body needs to be reduced.

### **Insect Glue Traps**

Glue traps are commonly used to trap and kill rodents, flies, and other insects. The glue or adhesive generally contains no pesticides, but some do contain insect attractants (e.g. pheromones). Some people may sprinkle food or rodenticide pellets on the trap to attract rodents to the trap. Clinical signs are mild gastrointestinal upset if the glue is ingested. There is also a risk for foreign body obstruction if the pet ingests the cardboard.

## **MISCELLANEOUS**

### **Glow Sticks**

Glow in the dark sticks and jewelry are popular novelty items that are sold at fairs, carnivals, novelty stores and skating arenas. The primary luminescent agent in these types of products is dibutyl phthalate, an oily liquid with a very unpleasant taste. Signs can be very dramatic and occur within seconds of the pet biting into the item. Compared to dogs, cats tend to have a much more exaggerated reaction to the taste of dibutyl phthalate. Cats may display profuse salivation and foaming, with occasional retching and/or vomiting.

### **Fire Starters**

Fire starter logs and wedges are used to start fires or used in place of natural wood. Most contain combustible material such as sawdust, woodchips, peanut shells, petroleum wax, and oils. There are different types of fire logs. Crackle firelogs contain natural seeds that will “pop” creating a crackling sound. Color logs contain different metals such as ammonium chloride and copper sulfate to create different color flames. Java logs contain coffee grounds that release a pleasant coffee aroma when burned. Clinical signs are generally associated with mild gastrointestinal upset. Most of the time, the logs crumble when the pet chews into them. However, if large pieces are swallowed there is a risk for foreign body obstruction. Less common signs are oral and gastrointestinal irritation from the copper sulfate and ammonium chloride. A caffeine toxicosis is possible from the coffee grounds.