

Texas Dept. of Agriculture Pesticide Applicator License Demonstration and Research Exam - - - Study Tips

This exam has 25 questions: 7 multiple choice, 6 fill-in-the-blank, and 12 short answer or math problems. There is not a single study manual for this category, but the general manual (either B-5060) and laws and regulations manual (B-5056) will help. A good understanding of calibration is a must. You can take a calculator to the exam, but NOT a list of formulas or conversion factors. There is no time limit.

The math involved includes figuring:

- * how many grams or milligrams of a product with a given LC_{50} would take to reach the LD_{50} in a person of a given weight.
- * how much (in liquid and dry measures) of a product to use, given a certain percentage of active ingredient and a certain rate per acre, for various types of applications (band, broadcast and overhead sprinkler)

The questions also cover:

- * how to increase application rate under certain circumstances, with variables including pressure and tractor speed
- * conditions of pesticide sales by licensed dealers
- * commercial and noncommercial record-keeping requirements
- * legal definitions of terms such as reentry interval, land and labeling
- * causes of pest resistance to pesticides
- * first aid response, including in event of accidental ingestion
- * the range of quantities defined as highly toxic, moderately toxic, and slightly toxic for oral, dermal and inhalation exposure to a LD_{50} or LC_{50} concentrations of a compound.

Hazard Level Toxicity Level	Toxicity Categories			
	I Highly Toxic	II Moderately Toxic	III Slightly Toxic	IV Relatively Nontoxic
Oral LD ₅₀ *	Up to 50 mg/kg	> 50 - 500 mg/kg	> 500 - 5000 mg/kg	More than 5000 mg/kg
Inhalation LC ₅₀	Up to 0.2 mg/l	> 0.2 - 2.0 mg/l	> 2.0 - 20 mg/l	More than 20 mg/l
Dermal LD ₅₀	Up to 200 mg/kg	> 200 - 2000 mg/kg	> 2000 - 20,000 mg/kg	More than 20,000 mg/kg
Eye Effects	Corrosive; corneal opacity not reversible within 7 days.	Corneal opacity reversible within 7 days; irritation persists 7 days.	No corneal opacity; irritation reversible within 7 days.	No irritation.
Skin Effects	Corrosive.	Severe irritation at 72 hours.	Moderate irritation at 72 hours.	Mild or slight irritation after 72 hours.
SIGNAL word required on label	DANGER (POISON ! skull & crossbones)**	WARNING	CAUTION	CAUTION
Approximate oral dose that can kill an average person	A few drops to 1 teaspoonful (or a few drops on the skin)	more than 1 teaspoonful to 1 ounce	more than one ounce to 1 pint or 1 pound	more than 1 pint or 1 pound

* LD₅₀ values are stated as the mg per kg of body weight that could kill 50 % of a test population. [1 mg/kg = one part per million (ppm). 1 ppm can be thought of as 1 inch in 16 miles, or 1 drop in 50 gallons, or 1 second in 12 days, etc.]

LC₅₀ is the concentration in the air in mg per liter (mg/cubic meter or µg per liter) that could kill 50 % of a test population in a defined period of time.

** Not all DANGER are also POISON but if POISON then must have skull and crossbones.

Note: All pesticide labels must include the statement, KEEP OUT OF REACH OF CHILDREN

(Values from Code of Federal Regulations - 40CFR Section 156.10 (h)(1))