

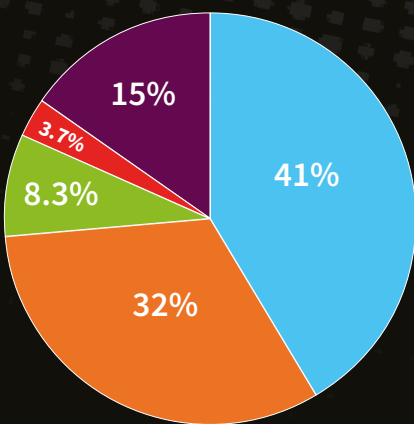
# Product safety testing

Every year, tens of thousands of animals suffer and die in experiments to test the safety of new chemicals and products. This guide aims to explain how they are tested, why, and what it means for the animals.

## Why are the tests carried out?

Animals are routinely used in toxicity experiments to try to assess the safety of a wide range of substances. Sometimes finished products are tested, but more usually it's the chemical ingredients that are being assessed for safety.<sup>1</sup> The purpose of these tests is to find out if the substances are safe for people to use or to see if they will harm the environment or other animals.

## Reasons for safety (toxicity) tests <sup>2</sup>



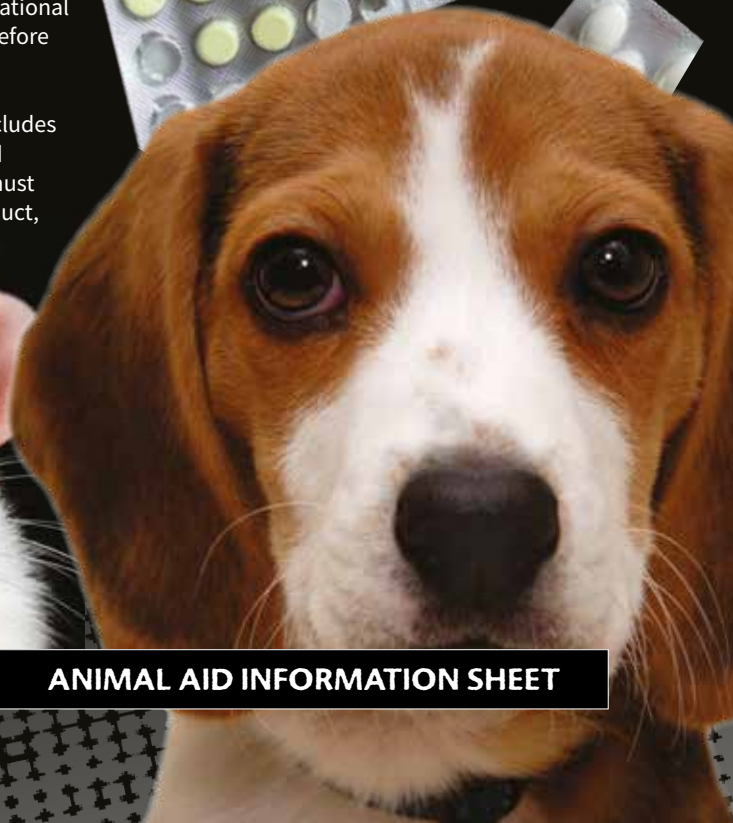
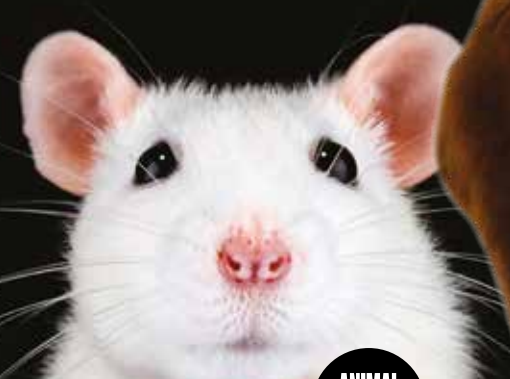
- Medicines 41%
- Veterinary products 32%
- Industrial chemicals 8.3%
- Herbicides (weed killers) 3.7%
- Other 15%

The largest proportion of toxicology tests are carried out to test the safety of new medicines (pharmaceuticals) for people. A substantial number of animals are also used to test medicines for animals (veterinary products). Fewer tests are done on household products, and none on cosmetics in the UK, although animals are still used in cosmetics testing in other countries.<sup>3</sup>

## Regulatory requirements

The vast majority of toxicity testing is carried out because of regulatory requirements governing different types of chemicals. National and international regulations currently require that new medicines are tested on animals before being licensed for use.

Chemicals are used in a huge variety of products in everyday use. This includes paints, dyes, plastics, pesticides, household cleaners, cosmetics and food additives. UK and EU laws and regulations tell manufacturers how they must test their chemicals for safety. Different laws cover different types of product, and abiding by these regulations usually requires the use of animal tests.







## Cosmetics

In 2013, the European Union banned all sale and importation of cosmetics products newly tested on animals, or that contained any ingredients that had been newly tested on animals.<sup>4</sup> This built on an earlier EU-wide territorial ban on cosmetics-related animal testing. Although important, the ban isn't as comprehensive as it appears, because new ingredients not solely used in cosmetics may still be animal-tested under chemicals safety legislation.<sup>5</sup>

The UK government has said that equivalent legislation will be retained for the UK post Brexit<sup>6</sup>, and a statutory instrument containing these provisions was adopted as part of 'no-deal' contingencies.<sup>7</sup> However, this could be undermined by a trade deal with the US where animal testing for cosmetics is legal.<sup>8</sup>

Although the law refers to 'cosmetics' it means more than just make-up. It covers all personal-care items such as soaps, shampoos, deodorant, toothpaste and moisturisers – products that many people think of as 'toiletries'.

More than 40 countries including Australia, Guatemala, India, Israel, New Zealand, Norway, South Korea, Switzerland and Taiwan have banned the sale of cosmetics containing ingredients tested on animals.<sup>9</sup>



## Household products

Household products include washing up liquid, laundry detergents, air freshener and bleach.

There is no EU-wide ban on testing household products or ingredients on animals.

In 2015, the UK banned the testing of finished household products on animals. However, there is a 'qualified' ban on the testing of ingredients for household products which allows the chemical ingredients of some products such as pesticides and herbicides (weed killers) to be tested on animals.<sup>10</sup>



## What do these tests involve?

The types of animals used include large numbers of mice, birds, rats and fish as well as smaller numbers of rabbits, guinea pigs, horses, dogs, monkeys and pigs.<sup>11</sup>

The animals are given the test substance to see how their bodies react. The chemical or product may be put in their food, pumped into their stomach, injected into them, or the animals may be forced to inhale it.

Animals can suffer a lot of pain and distress

from the effects of being dosed with these substances. Because many chemicals are very poisonous, the safety tests can involve considerable suffering.

Some of the symptoms observed in toxicity testing include internal bleeding, convulsions, vomiting, tremors, coma, breathing difficulties and death. Almost all animals are killed at the end of testing (if they survive), and their bodies may be cut up and analysed.<sup>12</sup>

## Principal types of animal-based toxicity tests

### Acute toxicity tests<sup>13</sup>

In an attempt to assess the toxic effect of a single dose of a product, or chemical, over a short period of time, animals (usually mice or rats) are given a single dose of a substance.

#### Skin sensitization

In an attempt to find out if a product, or chemical, causes an allergic reaction, a test substance is applied to an animal's skin.

#### Eye and skin irritation

In the Draize eye and skin irritation tests a substance is dripped into rabbits' eyes or smeared onto their shaved skin to see if it causes harm.

#### Lethal dose 50% (LD50)

The lethal dose 50 percent (LD50) test is an acute toxicity test which involves finding the dose which kills half the animals tested.

#### Maximum tolerated dose (MTD)

Maximum tolerated dose (MTD) studies involve steadily increasing the dose of a medicine to an animal until the adverse effects indicate that an MTD has been reached.

After the acute toxicity tests, chronic or long-term studies involving repeated doses of a drug, are carried out over a longer period of time.



### Chronic (long-term) toxicity tests<sup>14</sup>

#### Repeated dose toxicity

In an attempt to assess the toxicity of the repeated exposure to a product, or chemical, over a period of time, animals (usually rats, mice and dogs) are given repeated doses of a substance. This may be for days, months or sometimes for up to two years.<sup>15</sup> Repeated dose toxicity tests are sometimes referred to as sub-acute tests (typically lasting 28 days)<sup>16</sup> or sub-chronic tests (typically lasting 90 days).





### Reproductive and developmental toxicity

These tests attempt to assess the effect that a substance has on the reproductive ability of an animal and on the development of offspring.

### Carcinogenicity

In an attempt to find out if a product, or chemical, causes cancer, animals (usually rats or mice) are given doses of a substance. The tests may last for up to two years before the animals are killed so that researchers can look for signs of cancer. The assessment of repeated-dose studies and carcinogenicity is often combined into a single study.<sup>17</sup>

### Genotoxicity

Short-term studies to investigate the effect that a substance has on an animal's genetic material (DNA and chromosomes) are used to test if chemicals are likely to cause cancer or heritable mutations.<sup>18</sup>

The full set of toxicity tests carried out on a new medicine that reaches the market, involving single dosing (acute) studies and long-term (chronic) studies, including repeated dose studies, reproductive testing and carcinogenicity testing, can involve between 1,500 and 3,000 animals.<sup>19</sup>



### Unreliable science

Many people question whether doing these tests on animals will reliably tell you if the products are safe for people to use. This is because the effects that the substances have on animals are often very different from the effects that they have on people.

### Non-Animal Test Methods

Lots of humane methods exist that can be used to replace animal safety tests. Scientists can study the effects of chemicals on small samples of human tissue that have been grown in the laboratory in what are called test tube (*in-vitro*) studies. These methods give results that are relevant to people because they use human cells.



### What you can do to make a difference:

- Join Animal Aid and help to campaign against animal experiments.
- Order a free *End animal experiments* action pack at [animalaid.org.uk/youth](http://animalaid.org.uk/youth)
- Ask your teacher to invite someone from Animal Aid to give a talk in a lesson on animal experiments.

### Cruelty-free shopping

Look out for the leaping bunny symbol on cosmetics, toiletries and household products. It indicates that animal testing has not been carried out on the finished product or the ingredients. This symbol also shows that the company does not use animals in the safety testing of any of the products it manufactures wherever they are sold in the world.



For an up-to-date list of 'cruelty-free' companies see [www.crueltyfreeinternational.org/LeapingBunny](http://www.crueltyfreeinternational.org/LeapingBunny)

#### Glossary

**Acute:** an illness or effect that lasts for a short period of time.

**Carcinogenic:** causes cancer.

**Chronic:** an illness or effect that lasts a long time. Cancer is an example of a chronic disease.

**Lethal dose:** how much of a chemical is required to cause death.

**Predictive:** to be able to tell reliably what will happen.

