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Which E-numbers and additives are from animal origin?

By

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E-numbers may be derived from animal origin. In many cases the origin of the product may be either from animal or non-animal sources. This is especially the case for those additives that contain fatty acids. These are normally of plant origin, but animal origin cannot be excluded. As the products are chemically identical, only the producer can give information on the exact origin.

There are few additives which are **always** of animal origin, such as:

- **E120 Cochineal** : a red colour obtained from female insects
- **E441 Gelatine** : derived from the bones and/ or hides of cattle and/ or pigs
- **E542 Edible Bone Phosphate** : an extract from animal bones
- **E904 Shellac** : a resin from the lac insect

Whilst some additives with a common code such as **E47**, can be either of animal or plant origin and this latter type needs to be investigated on a case-by-case basis per product/ manufacturer.

Muslims, and vegetarians, or vegans can use the list below, to determine whether or not to accept the additive.

E-number	Name	Origin
E120	Carmine, Cochineal	Colour isolated from the insects <i>Coccus cacti</i>
E322	Lecithine	Soy beans and for some purposes from chicken eggs.
430	Polyoxyethylene(8) stearate	Stearic acid is a fatty acid. See note below this table.
E431	Polyoxyethylene (40) stearate	Stearic acid is a fatty acid. See note below this table.
E432	Polyoxyethylene-20-sorbitan monolaurate	Lauric acid is a fatty acid. See note below this table.
E433	Polyoxyethylene-20-sorbitan mono-oleate	Oleic acid is a fatty acid. See note below this table.
E434	Polyoxyethylene-20-sorbitan monopalmitate	Palmitic acid is a fatty acid. See note below this table.
E435	Polyoxyethylene-20-sorbitan monostearate	Stearic acid is a fatty acid. See note below this table.
E436	Polyoxyethylene-20-sorbitan tristearate	Stearic acid is a fatty acid. See note below this table.
441 (invalid number)	Gelatin	From animal bones. Since the BSE crisis mainly from pork, but other animal bones are used. Halal gelatin is available in specialised shops.
E470	Fatty acid salts	For fatty acids, see note below this table.
E471	Mono- and di-glycerides of fatty acids	For fatty acids, see note below this table.
E472	Esters of mono- and diglycerides	For fatty acids, see note below this table.
E473	Sugar esters of fatty acids	For fatty acids, see note below this table.
E474	Sugarglycerides	Combination of sugar and fatty acids. For fatty acids, see note below this table.
E475	Polyglycerol esters of fatty acids	For fatty acids, see note below this table.
E477	Propyleneglycol esters of fatty acids	For fatty acids, see note below this table.
478	Mixture of glycerol- and propyleneglycol esters of lactic acid and fatty acids	For fatty acids, see note below this table.

E479 and 479b	Esterified soy oil	For fatty acids, see note below this table.
E481/2	Natrium/Calcium-stearoyllactylate	Mixture of lactic acid and stearic acid, a fatty acid. For fatty acids, see note below this table.
E483	Stearyl tartrate	Mixture of tartaric acid and stearic acid, a fatty acid. For fatty acids, see note below this table.
484	Stearyl citrate	Mixture of citric acid and stearic acid, a fatty acid. For fatty acids, see note below this table.
E485 (invalid number)	Gelatine	From animal bones. Since the BSE crisis mainly from pork, but other animal bones are used. Halal gelatin is available in specialised shops.
E491-5	Combinations of sorbitol and fatty acids	For fatty acids, see note below this table.
542	Edible bone phosphate	From animal bones. Since the BSE crisis mainly from pork, but other animal bones are used.
E570-73	Stearic acid and stearates	Stearic acid is a fatty acid. See note below this table.
E626-29	Guanylic acid and guanylatens	Mainly from yeast, also from sardines and meat.
E630-35	Inosinic acid and inosinates	Mainly from meat and fish, also made with bacteria.
636, 637	Maltol and Isomaltol	From malt (barley), sometimes also from heating milk sugar.
E640	Glycin	Mainly from gelatine (see 441 above), also synthetically.
E901	Bees wax	Made by bees, but does not contain insects.
E904	Shellac	Natural polymer derived from certain species of lice from India. Insects get trapped in the resin.
913	Lanolin	A wax from sheep. It is excreted by the skin of the sheep and extracted from the wool.
920-21	Cystein en cystin	Derived from proteins, including animal protein and hair.
E966	Lactitol	Made from milk sugar

1000	Cholic acid	From beef (bile)
E1105	Lysozym	From chicken eggs

Fatty acids

Fats, whether from plant or animal origin, consist of glycerol and generally 3 fatty acids. Fats can enzymatically be split in fatty acids and glycerol. The fatty acids can be purified and reconnected to glycerol as mono- di- or triglycerides (glycerol with 1, 2 or 3 fatty acids respectively). Many additives consist of these semi-natural fats, which act as emulsifiers.

These semi-natural fats are degraded and metabolize in the body, just like normal fat.

Chemically the fatty acids from animal or plant origin are identical. Therefore the origin is of no importance for the function in the food. Producers thus normally choose the cheapest oils to make these fats. This is generally some vegetable oil. However, animal fats can not be excluded.

Unfortunately it is not possible to distinguish animal and vegetable fatty acids in the final product. Only the producer can provide information on the origin. As there is a risk for animal fats, Muslims, and vegans should avoid these products, unless the origin is mentioned by the producer.

Other common ingredients of animal origin:

Casein and caseinate	A protein from cow's milk
Gelatin	From animal bones. Since the BSE crisis mainly from pork, but other animal bones are used. Halal and kosher gelatin is available in specialised shops.
Lactose	Sugar from cow's milk
Omega-3-fatty acids	From fish, seals and soy.
Whey and wheypowder	A fraction of milk, see also here . (Whey, whey powder and cheese may not be halal when the animal that provided the rennet to clot the milk, is not slaughtered according to Islamic rules. Only the producer can provide the information on the status of these products.)

Overview of additives and ingredients that are often mentioned as being from animal origin:

E101	Riboflavin (lactoflavin)	Yellow food colour. It can be isolated from milk, but commercially produced from micro-organisms. Isolation from milk is too expensive.
E153	Carbon	Prepared from charcoal from burned wood. Can be obtained from burned animals, but this is no longer done.
E161g	Canthaxanthin	Colour prepared from mushrooms or synthetically from carotene. Historically it was also prepared from shrimp waste or flaming feathers. Synthetic cantaxanthin is cheaper and has higher purity.
E270	Lactic acid and lactates	Made by bacterial fermentation on sugar waste (molasses). It is not present in milk. All fermented products (dairy and non-dairy) contain lactic acid as the result of bacterial fermentation. Commercially only prepared from sugar.
E306, 307, 308	Tocopherols (vitamin E)	From vegetable oils. Also in animal (fish) oils but these oils are too expensive. Fish oils are, however, used as a source in food supplements, but not in foods, due to the strong flavour.
E325-7	Lactates	See E270 above.
375	Nicotinic acid (vitamin B3)	From yeast. Production from liver is too expensive.
E422	Glycerol	Part of animal and vegetable fat. Commercially made synthetically from petroleum.
E476	Polyglycerolpolyricinoleate	Synthetic vegetable fat.
E620-5	Glutamates.	Commercially only made from sugar by bacterial fermentation or from seaweed. Theoretically from any protein, but that is too expensive.
E927b	Ureum	Synthetic. Can be isolated from urine, but too complicated and expensive.
-	Vitamin B12	Commercially only made by bacterial fermentation. Isolation from meat is too expensive, due to the very low concentrations.

Which additives contain milk products?

None of the additives (E-numbers) contains milk protein or other milk ingredients. Milk ingredients are always mentioned as milk powder, casein, whey, whey powder, yoghurt, yoghurt powder and so forth. Lactic acid is produced from sugar by certain bacteria; it is not derived from milk.

Which additives contain chicken products?

None of the additives (E-numbers) contains chicken products, except **E322 (lecithin)** that may be derived from egg yolk