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PROPOSAL FOR A NEW UNECE STANDARD FOR FANCY MEATS

**INFORMATION ON BLOOD OF SLAUGHTER ANIMALS
INTENDED FOR HUMAN CONSUMPTION**

Document submitted by Poland

*Information on blood of slaughter animals
intended for human consumption*

Blood is a liquid tissue of animal organisms, having various physiological functions, the most important among them is the transport of nutrients and of oxygen to tissues and of carbon dioxide as well as waste products from tissues.

Blood obtained during slaughter of slaughter animals is considered a slaughter by-product (fancy meats) and may be intended for consumption, pharmacy and feed purposes. The usefulness of blood for consumption purposes is determined by the state of health of animals at the time of slaughter, and the hygienic conditions of obtaining it. It is assumed that the condition for allowing blood to consumption is allowing to consumption the meat from carcass of the slaughtered animal. There exists commonly used technical devices that guarantee hygienic blood collection, such as animal bleeding equipment with tubular knives.

The chemical composition of blood is similar to that of lean meat: main components of blood are water (up to 80%), proteins (up to 20%), carbohydrates and mineral compounds (up to 3%).

Blood is composed of two fractions: liquid, called plasma, and morphotic elements: red blood cells, white blood cells and thrombocytes. Plasma constitutes about 55%, and morphotic elements – about 45% of blood.

Plasma contains 90 – 92% of water, 7—8% of protein and about 3% of organic and non-organic compounds.

Red blood cells constitute major, as far as their amount, morphotic blood elements. Their number is different in various slaughter animals. Red blood cells constitute 43.3% of blood of a horse, 41.5% - of a pig, 40% - of grazing cattle, 34% - of a goat and 32% - of a sheep. Their chemical composition is does not change significantly: water 60%, proteins (haemoglobin) 35%, other substances 5%.

Blood collected at slaughter is perishable, as it contains fibrinogen that under the influence of enzymes changes into insoluble fibrin causing blood to clot. To prevent that, either chemical stabilising substances are added to blood and as a result stabilised blood is obtained, or fibrin is removed through mechanical mixing and as a result defibrinated blood is obtained. Protein content in defibrinated blood is lower than in stabilised blood, thus the former is of less value for food processing. Liquid component may be obtained from blood by centrifugation: plasma from stabilised blood, and serum from defibrinated blood. Cluster of blood cells is the solid fraction obtained during centrifugation.

Clotted blood is usually intended for feed purposes. However, sometimes compounds of calcium or raw materials containing calcium (whey) are added on purpose to obtain processed

blood intended for consumption. In Poland such a product, similar in looks and consistency to liver, is named LIVEX. Blood plasma itself can also be processed. As a result a white clot is obtained.

Conserved blood and defibrinated blood, as well as fractions thereof, can be preserved by freezing or drying. Blood once frozen can not be separated into fractions after defrosting, because freezing causes haemolysis of red blood cells. In microbiological preservation of blood and of its derivatives sodium chloride is used, in the amount ranging between 3% (serum and plasma) and 10% (cluster of blood cells). Usually 5% of sodium chloride is added to defibrinated and stabilised blood.

Blood intended for human consumption is used in production of sausages and blood sausages, brawns, blood and barley loaves, blood flour and in clarified wines.

Because their proteins bind water well, they emulsify fat and improve nutritional value of products, blood plasma and serum may be used as a protein component of numerous meat products.

Blood intended for human consumption may also be used in cooking, as a component of soups (the so called *czernina* (black soup) in Polish and Czech cuisine) or of game dishes (*civet* in French cuisine), or in some regional cuisines. Blood intended for human consumption is often used as black food colouring in meat stuffing or in products such as meat rolls.

In Poland there is a quality standard, issued in 1964, PN-64/A-85701 "blood of slaughter animals and its derivatives".

Conclusions:

Blood intended for human consumption and its derivatives are obtained in slaughterhouse plants, while further processing is carried out most often in specialist meat processing establishments. Thus blood and its derivatives are subject of trade, which can be of international character, especially in case of conserved and frozen products. Having the above in mind, we believe that the following derivatives of blood intended for human consumption should be taken into consideration in the draft of the UN/ECE Standards for Offals: stabilised blood, defibrinated blood, blood serum, blood plasma and clusters of blood cells, in natural form, or possibly preserved with sodium chloride (NaCl), cooled or frozen.