

## The importance of the rheological properties to the consumption quality of foodstuff\*

K O C H A N , A.

Technical University Dresden, GDR.

All the problems discussed thus far within the subject of this Symposium were concentrated on the optimum design of food-technology processes and the measurements and evaluations of the process parameters indispensable for this as prerequisites. In this context, measuring means the comparison with a fixed yardstick.

For the food industry this scale for comparison can be given exclusively by the needs of population.

Now the question arises how these needs may be determined. As to product quality, Siskow makes a distinction between consumption and production quality. In this way, approaches are opened for stimulating the production quality through the consumers demands, i.e. the consumption quality, by an operative measurement complex. Then the technological process is performed according to the quality parameters demanded by consumers. The Table 1. shows the chain, and how may be defined this terms for food products. The expectations of the consumers for salame and smoked farm sausage have be determined in such an accurate way that the above demands, namely for the realization, execution and design of the technological process according to the quality parameters demanded by the consumer, can be effected. To this problem some first test results are available. The relevant studies were carried out by the author in co-operation with the ASMW (G. D. R. Office of Standardization, Measuring and Quality Control, Special Branch of Foodstuffs).

The evaluation of the test results was made at the Technical University Budapest, Department of Biochemistry and Food Technology. Five salame quality types and one boiled sausage quality with milk protein added were offered to 215 consumers as test persons in the German Democratic Republic and in Hungary.

According to a preference classification represented on the questionnaire of Table 2. the consumers gave statements to the questions formulated in Table 3.

The results lead to the conclusions below:

1. The products selected are statistically significant (different) comprising the quality spectrum that is, for the present, relevant to the product group „Salame”.

Table 4 shows the results.

2. The following properties are essential to the consumer with regard to the consumption quality of sausages:

\* A III. Nemzetközi Élelmiszeranalitikai Módszertani Szimpóziumon elhangzott előadás. Szentendre 1975. X. 8-11.

Table 1.

## Representation of the chain „needs of foodstuffs” – „use-value” – „consumptionquality”

	use – value	consumption quality for sausage
needs of <i>food stuffs</i>	.sensory demand's .nourish-physiolog demand's  .demand's at the offer – type  .demand's at the consum-maturity	-appearance -consistency -smell -flavour -durability -caliber -fat-contents

## Questionnaire 1

Table 2.

1. Please, classify the sausage species presented according to the product quality judged by your sensory organs. The product preferred by you obtains the rank no 1. Please, grade the subsequent products as to your demands to „long-keeping sausage” giving them the rank numbers 2 through 5.

2. Which of the products offered you prefer or refuse?

Product	Preferred (x)	Refused (x)
1		
2		
3		
4		
5		

(x) Please, check off the respective product number in the columns.

3. Why do you prefer this product?

4. Why do you refuse it?

5. In which regard should the products refused be improved?

## Questionnaire 2

Table 3.

1. Which of the following named qualities attributese are suitable to charactirize the consumption quality?

1. colour of the sausage
2. consistence
3. surface condition
4. colour of the cut-surface
5. structure
6. adhesion, cohesion
7. smell
8. juiciness
9. mellowness
10. flavour
11. saltness

2. Order these properties adequate your demand to your needs to a sausage sort in order of rank, value of position 1 to 11!

3. Make proposals, which properties of the sausage are important for the consumption quality!

Table 4.

## Rancing test product – classification

Rancing number	Product number	$\bar{x}$	$\frac{t \times s}{n}$
1 .....	I.	1,376	0,116
2 .....	IV.	2,124	
3 .....	II.	3,338	
4 .....	III.	3,505	
5 .....	V.	4,605	

Table 5

## Preference and Rejection reasons

<i>Preference reasons</i>	
Flavour	300
Smell	120
Appearance	180
Inner state	220
<i>Rejection reasons</i>	
Flavour (irck. allover fat)	220
Smell	28
Apparance	40
Inner state	300

Table 6.

## Rancing test for the determination consumer – group – parameter

Place-figure		
1	flavour	difference no signif.
2	smell	
3	colour, outside	
4	colour, plane of intersection	
5	consistency	
6	juiciness	

Table 7.

## Consumer expectation „Salame”

Attribute	Frequency
flavour .....	108
smell .....	20
colour .....	40
inner state .....	110
durability .....	30
reduction of calories ...	20



- Taste
- Smell
- Outside colour and cut appearance
- Inner state (consistency, juiciness).

Table 5 shows the reasons mentioned for the popularity or refusal.

3. The series of grades for these properties (Table 6) has to be taken into account for the property weighting within the scope of state quality control based on the evaluation principles.
4. Further results indicated that „taste” (108 times) and „inner state” the latter being determinable by the rheological techniques discussed here, are a lot more frequently demanded by the consumers whereas „colour” (41 times) and „smell” (22 times) are cited less frequently as demands made by the consumers.  
(Evaluation result see Questionnaire 2, Table 7)
5. These statements were confirmed by the results of a sensory ring analysis made for salame and smoked farm sausage. This ring analysis was carried out by 5 expert collectives from the G. D. R. being evaluated then by means of variance and discriminant analysis.

The investigations described and the results discussed aimed at verifying that it is possible as well as necessary to perform the further development of the quality protection methods in food industry on the basis of the consumers expectations. Exemplified by the salame sausage, the weighting factors corresponding to the evaluation principles valid in the G. D. R., are substantiated for the essential properties that determine quality, e.g.,

appearance	1
consistency	1
flavour	2

By means of the measuring-technological approaches to a reproducible evaluation of the group of rheological properties a way is opened how to raise the confidence-level, to the food analysis results.

## A REOLÓGIAI SAJÁTSÁGOK JELENTŐSÉGE AZ ÉLELMISZEREK FOGYASZTÓI ÉRTÉKE SZEMPONTJÁBÓL

*Kochan, A.*

Szerző az NDK-ban és Magyarországon végzett szalámi vizsgálatok példáján mutatja be a reológiai tulajdonságok szerepét a minőség kialakításában. Egyben a fogyasztók széles körében végzett preferenciavizsgálatok alapján rávilágít utóbbiak jelentőségére az élelmiszerminősítésben.

# ЗНАЧЕНИЕ РЕОЛОГИЧЕСКИХ СВОЙСТВ С ТОЧКИ ЗРЕНИЯ ПИТАТЕЛЬНОЙ ЦЕННОСТИ ПРОДУКТОВ ПИТАНИЯ

A. Кохан

На основании испытаний проведенных в ГДР и ВНР на колбасных изделиях автор представляет роль реологических свойств в образовании качества колбасных изделий. Одновременно на основании проведенных испытаний предпочтения в широком кругу потребителей, подчеркивает их значение в качественной оценке пищевых продуктов.

## BEDEUTUNG DER RHEOLOGISCHEN EIGENSCHAFTEN VOM STANDPUNKT DES VERBRAUCHERWERTES VON LEBENSMITTELN

A. Kochan

Die Rolle der rheologischen Eigenschaften bei der Entwicklung der Qualität wird anhand von in der Deutschen Demokratischen Republik und in Ungarn durchgeführten Salamiuntersuchungen gezeigt. Zu gleicher Zeit wird auf Grund von in einem breiten Kreis der Verbraucher durchgeführten Vorliebeuntersuchungen auf die Bedeutung der rheologischen Eigenschaften in der Auswertung von Lebensmitteln hingewiesen.

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## KÜLFÖLDI LAPSZEMLE

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WINDEMANN HELENA és  
MÜLLER U.

### Kadmiummeghatározás dohányban atomabszorpciós spektrofotometriával

(Die Bestimmung von Cadmium in  
Tabak mittels Atomabsorptionsspektro-  
fotometrie)

Mitt. Geb. Lebens. Hyg. 64, 1, 66,  
1975.

A szerzők dohánymintákból kadmiumot határoztak meg AAS módszerrel. Az előkészítés különböző módjait röviden leírták, ezek: száraz hamvasztás platina tégelyben 450–500 °C-on, roncsolás 1. HNO<sub>3</sub>(H<sub>2</sub>O<sub>2</sub>)-vel, 2. HNO<sub>3</sub>(H<sub>2</sub>SO<sub>4</sub>) H<sub>2</sub>O<sub>2</sub>-vel, 3. H<sub>2</sub>O<sub>2</sub>-vel és egy száraz roncsolási módot „alacsony hőmérsékletű-plazma-roncsoló” készülékkel. Az utóbbi módszer lényege az, hogy az anyagot evakuált térben

„plazma áramnak” vetik alá. Ez olyan ionizált gázból áll, amely szabad gyököket és más reaktív anyagokat tartalmaz, amelyek a biológiai anyagot oxidálják 100–125 °C hőmérsékleten. A különbözőképpen előkészített minták oldataiból végeztek közvetlen meghatározást, valamint ammonium-pirrolidinditiokarbamát- és ditizon-Cd komplex metilizobutilketonos kivonatából. Az eredményekről táblázatos összeállítást készítettek. Megalapították, hogy a száraz hamvasztásnál veszteséggel kell számolni, az alacsony hőmérsékletű – plazmaroncsoló az egyéb nedves hamvasztással összevethető eredményt hozott, csak a készülés költséges. A hamuoldatból történő közvetlen mérésnél a valósnál nagyobb értéket kaptak, a komplexből való meghatározás mellett maradtak. A talált Cd kb. 1,4 ug/cigaretta.  
V. E. (Kaposvár)