

**TOTAL PRODUCT QUALITY**

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# DESIGNING QUALITY INTO PRODUCT

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## SURVIVAL OF THE FITTEST

The only companies that will survive are the ones who

"adopt constancy of purpose of quality,  
productivity and service  
and go about it with  
perseverance and Intelligence"

*W.E. Deming, 'Out of the Crisis'*

"Our troubles lie entirely with the workforce"

*(Wrong)*

## COSTLY CONFUSION

Confusion between common causes (SYSTEM)

and special causes leads to frustration of everyone,

and leads to greater variability and to higher costs,

exactly contrary to what is needed.

I should estimate that in my experience most troubles and

and most possibilities for improvement add up to

proportions something like this :

**94% belong to the System (responsibility of MANAGEMENT)**

**6% special causes (OPERATOR)**

*W.E. Deming 'Out of the Crisis'*

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**is NOT** **QUALITY** { an engineer's marketing a general management } determination

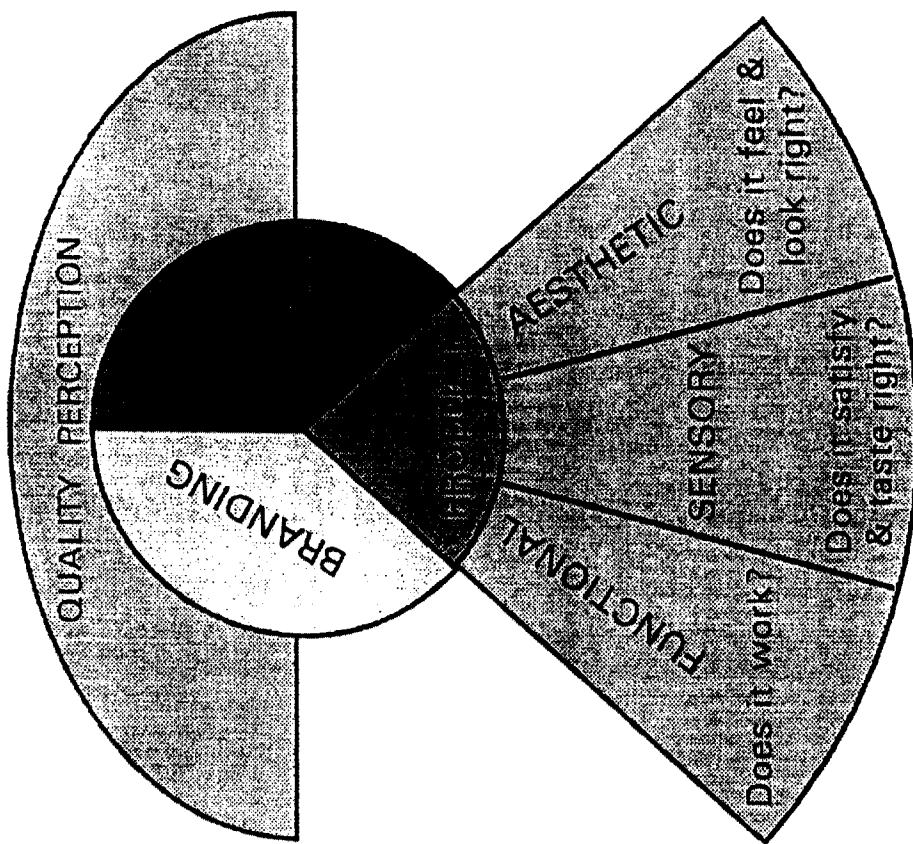
**QUALITY**  
is a CUSTOMER determination  
based on his/her  
**ACTUAL EXPERIENCE WITH THE PRODUCT**  
measured against his/her  
**REQUIREMENTS**

**QUALITY IS NOT FIXED**

**QUALITY**  
is **RELATIVE** and represents a **MOVING TARGET**  
in a competitive market



**Therefore, identification of customer requirements  
explicitly is a foundation point for effective quality  
control**



Best quality = Total customer satisfaction



# **Cigarettes - To Satisfy Whose Needs?**

- 1. The Smoker**
- 2. National Governments**
- 3. International Bodies**
- 4. People in the same room**
- 5. People in the adjoining room**
  - Self extinguishing cigarettes**
  - League tables for propensity to ignite**
- 6. Who next?**



# Standard Machine Smoking

- ▶ Puff volume 35ml
- ▶ Puff duration 2 sec.
- ▶ Puff frequency 1 per min.
- ▶ Butt length ?



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# Effect of Smoking Conditions on Deliveries

		Puff Volume cc			Peak Pressure cm W.G.		
		35	50	70	24	32	55
<b>Cigarette 1</b>							
Filter p.d. mm wg	85	10	13	16	10	13	16
Filter Vent %	37	1.0	1.2	1.6	1.0	1.2	1.6
		8	7	6.5	8	7	6.5
		NFDPM NIC PN					
<b>Cigarette 2</b>							
Filter p.d. mm wg	28	11	18	24	(73)	(96)	(124)
Filter Vent %	51	1.2	1.7	2.3	2.2	2.6	3.1
		9	8.5	8	6.5	6.5	6
		NFDPM NIC PN					



( ) Puff Volume



# **Project Felt**

## **Objectives**

- 1. To discover practical routes to enhance the sensory characteristics of 9mg products such that the new variants are demonstrably more acceptable than current products to 12-14mg tar delivery smokers**
- 2. Use these identified design routes to match specific full-flavour products**



# Project Felt - Stage 2

Blend	Felt Variants	B&H
Nicotine (%)	2.35	2.09
Reducing Sugars (%)	14	14
Total Sugars (%)	16	16
Construction		
Rod Length (mm)	84	84
Filter Length (mm)	20	20
Rod Pressure Drop (mmWG)	58	60
Filter Pressure Drop (mmWG)	66-98	84
Ventilation (%)	17-40	0
Total Pressure Drop (mmWG)	91-139	144
Paper Permeability (CU)	80	80
Smoke		
NFDPM (mg)	9.4-10.0	14.1
Nicotine (mg)	0.85-0.97	1.15
NFDPM / Nicotine	10-12	12
Puff Number	8.0-9.0	8.8

Selected variant C429 Felt 4 Blend (8% Burley 24% ET)



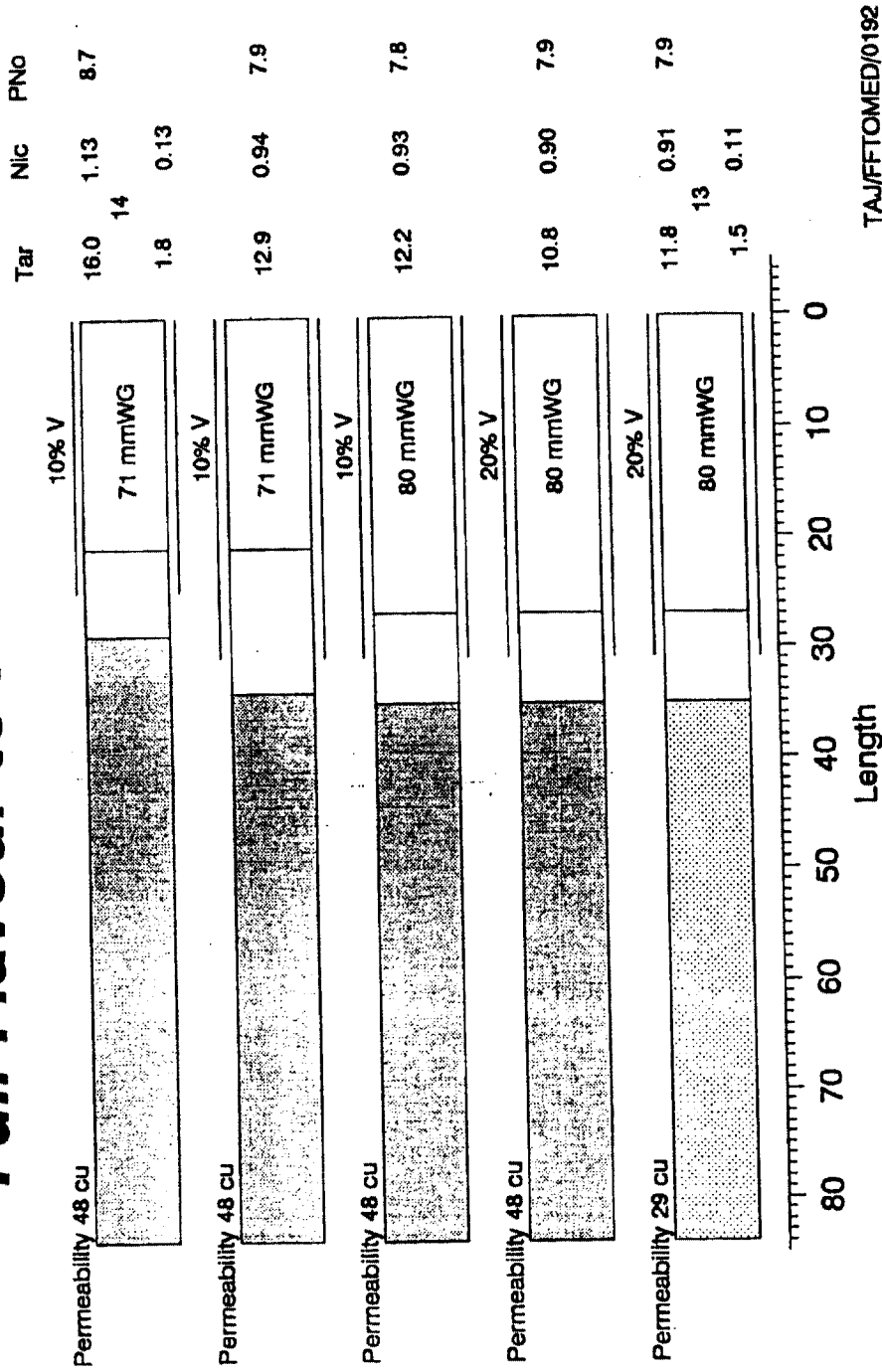
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# **Blind Preference Results** **Benson & Hedges versus Felt**

	All Respondents %	Re-Percentaged %
Much prefer B&H	21	45
Prefer B&H	11	
Slightly prefer B&H	8	
Like both equally	4	55
Slightly prefer Felt	11	
Prefer Felt	11	
Much prefer Felt	26	
Dislike both equally	8	



# Full-Flavour to Medium



TAJ/FFTOMED/0192

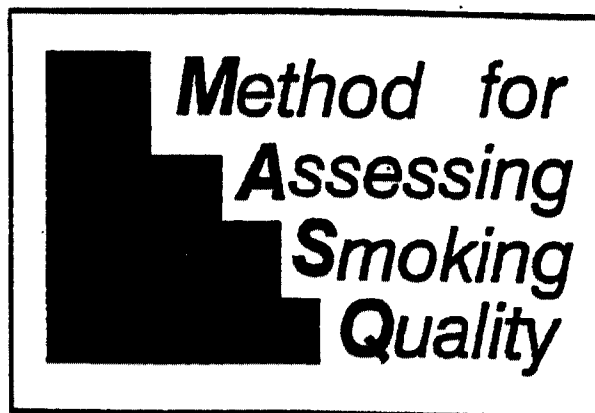
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## PQRS - Recap

1. PQRSsystem approved June, 1990
2. System covers : Visual & Tactile  
Physical  
Chemical  
& Sensory
3. Own & Competition products  
sampled from the MARKET
  - \* Key Products - Monthly
  - \* Market Coverage (ca 80%) - Quarterly
4. Provides information on relativity &  
CONSISTENCY - Visual & Tactile  
Physical  
Chemical  
Sensory  
SUPERIORITY - Visual & Tactile  
Physical

<p>MASQ will provide SUPERIORITY information on SMOKING QUALITY</p>
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**1. CONSUMER BASED**

**2. STANDARDISED**

- *minimum number of target smokers*
- *attribute set*
- *questionnaire*
- *analysis*
- *reporting*

**3. PRACTICAL**

**4. ACTIONABLE & RELEVANT INFORMATION**

**ON A REGULAR BASIS**

# MASQ - Objective

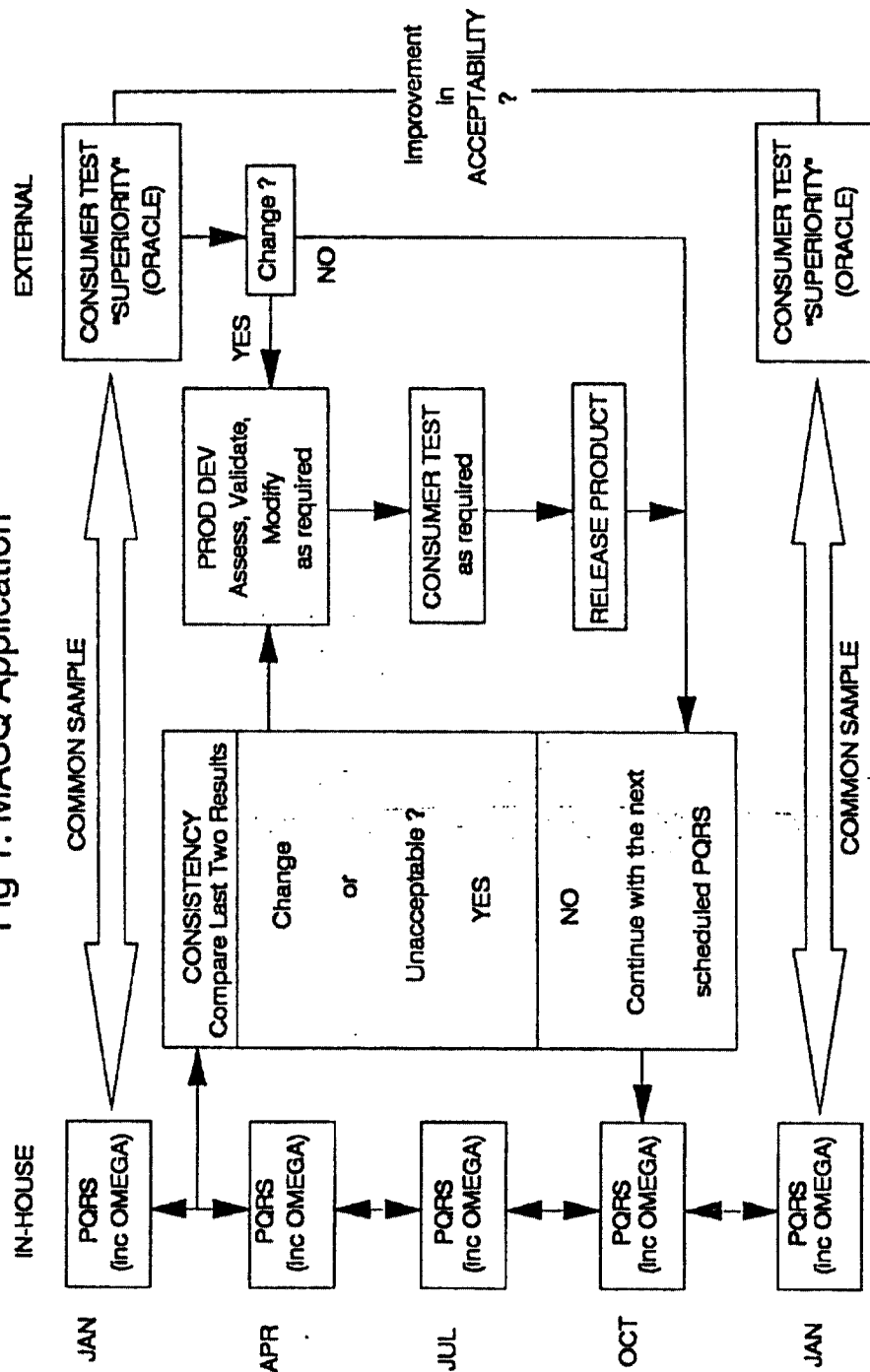
## 1. Smoking Quality Assessment to achieve SUPERIORITY

To ensure that our product is superior amongst  
**SMOKERS of OUR Product**  
&  
**SMOKERS of key COMPETITION Product/s**  
In that segment

## 2. To ensure that our key product delivers CONSISTENT smoking quality over time

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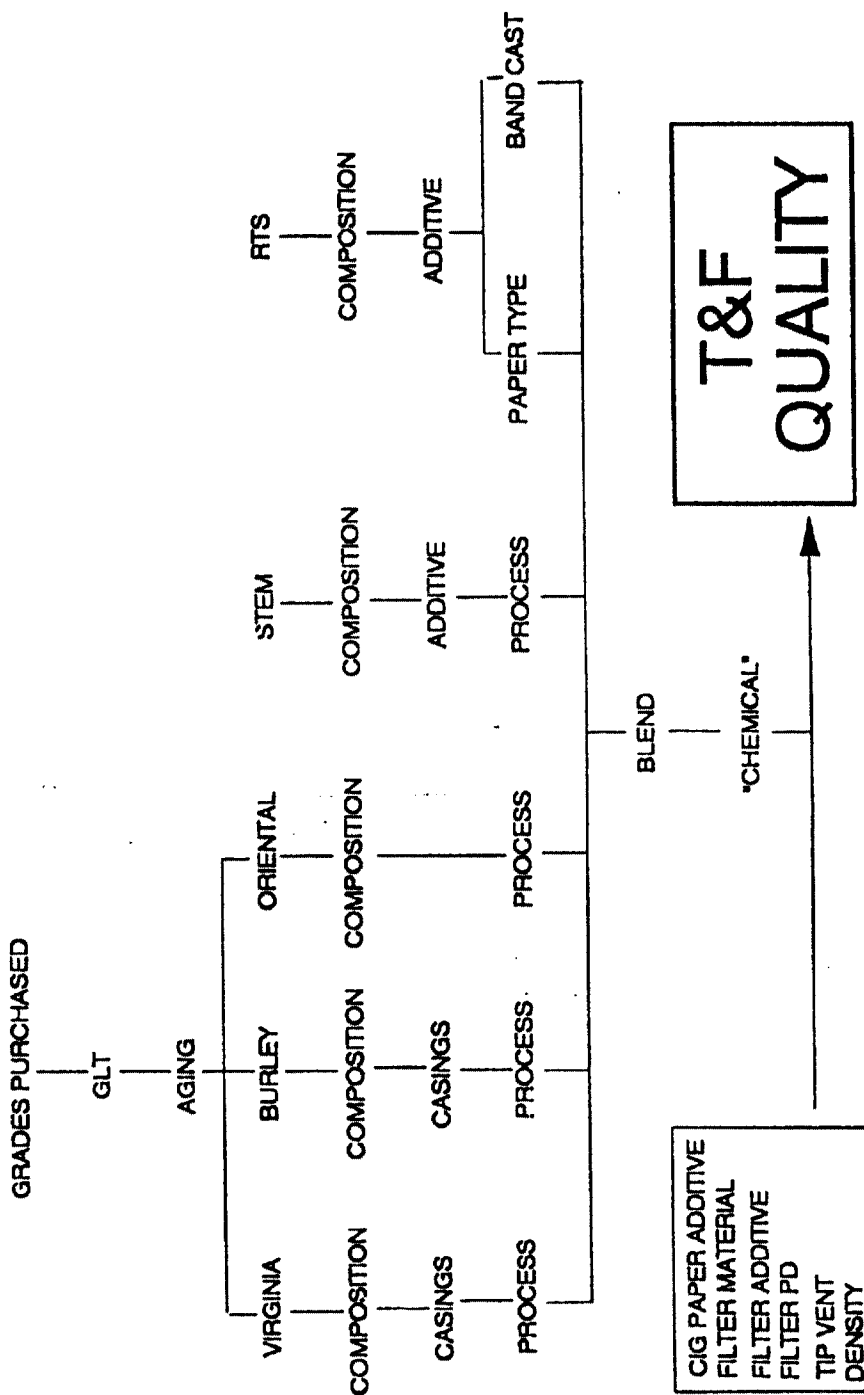
Fig 1. MASQ Application



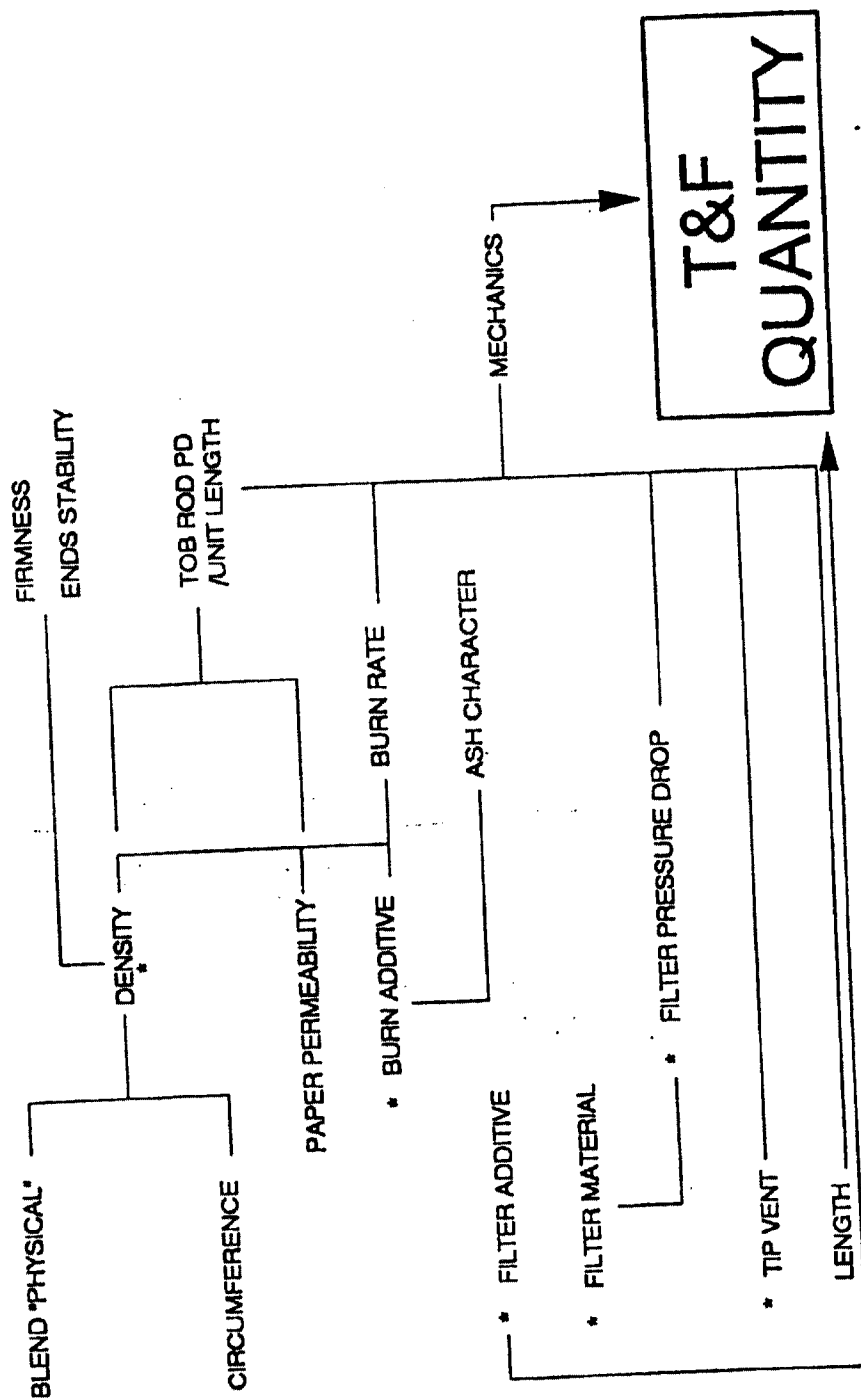
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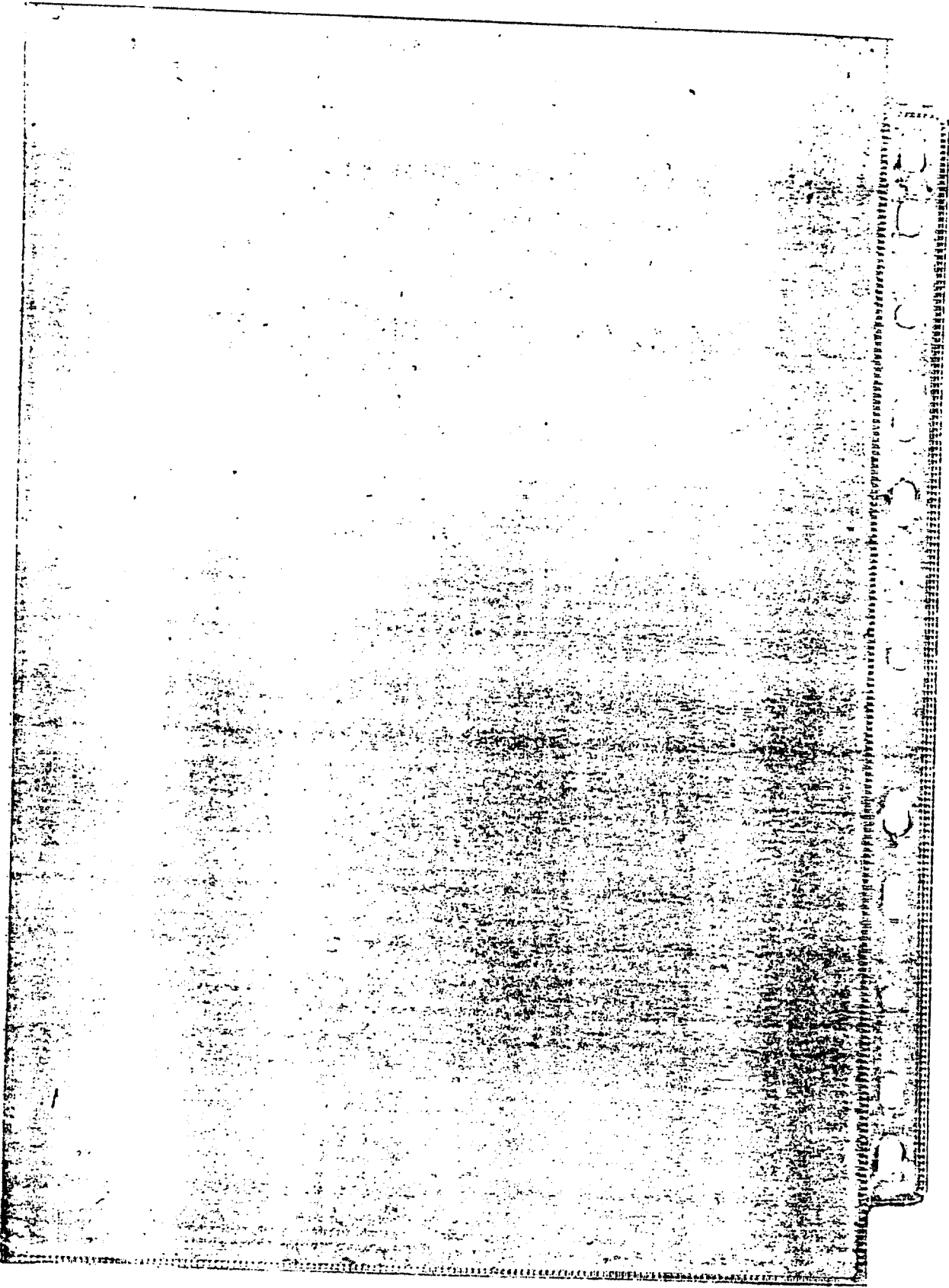
# PRODUCT QUALITY



# PRODUCT QUALITY



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