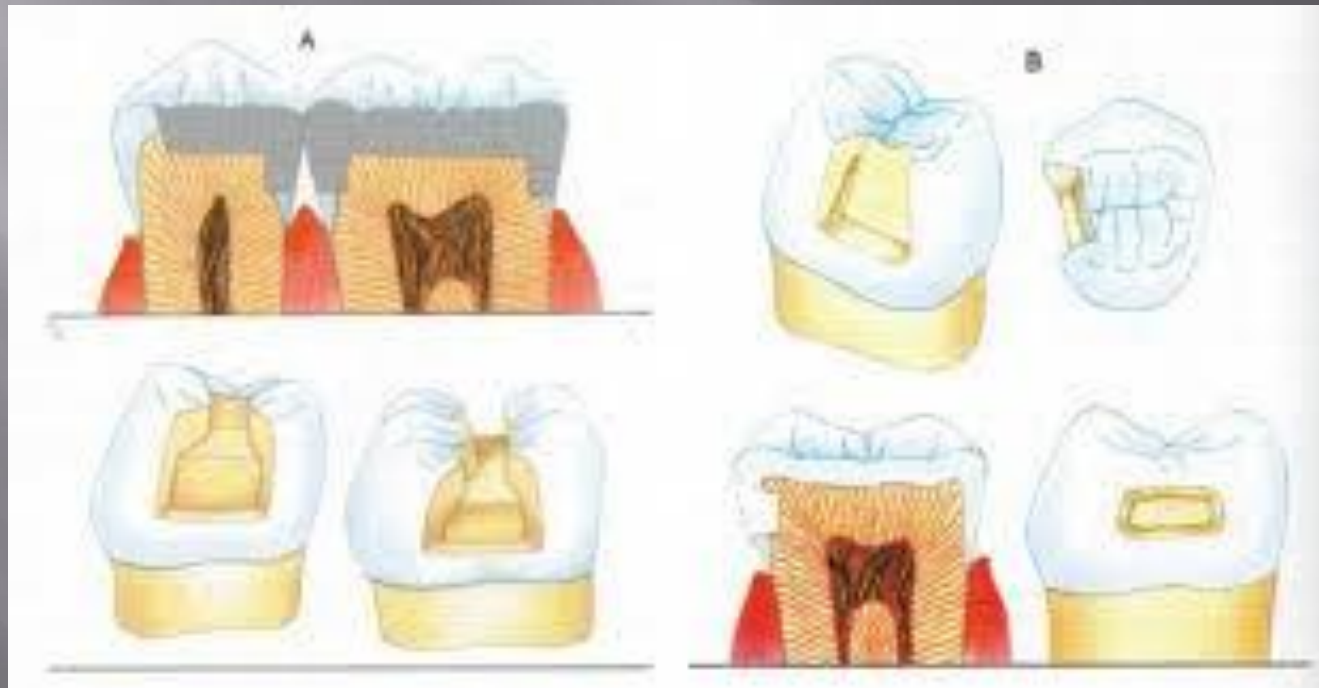
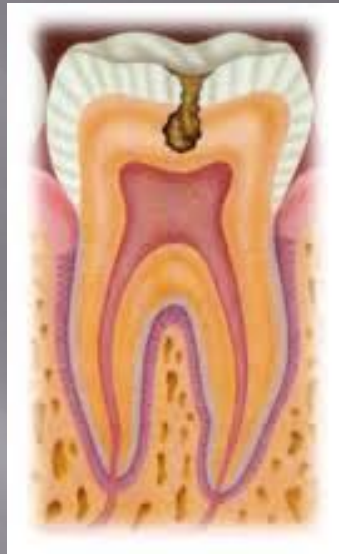
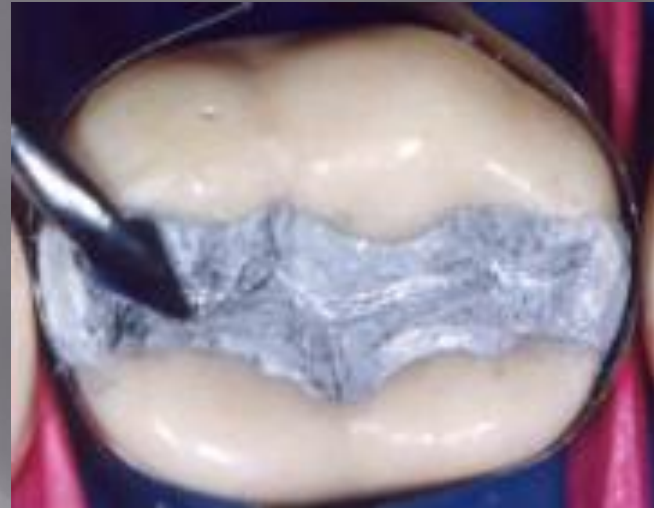


ADESIVO DENTINÁRIO

KMW

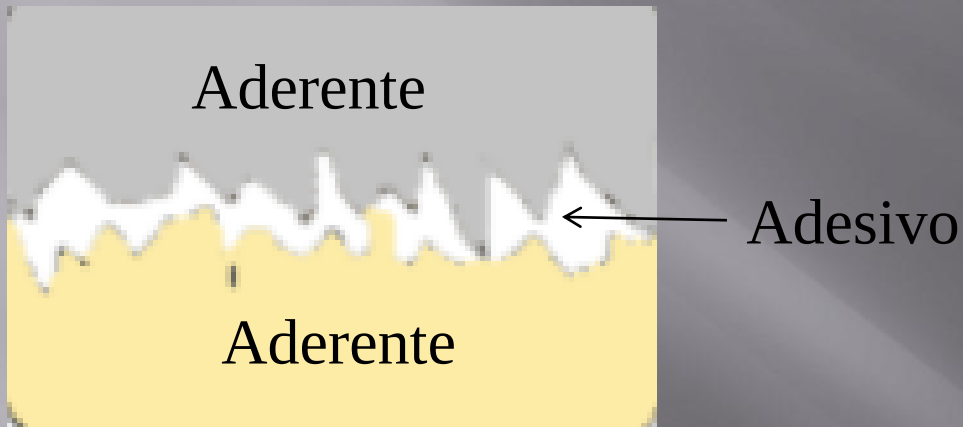
TRMF -





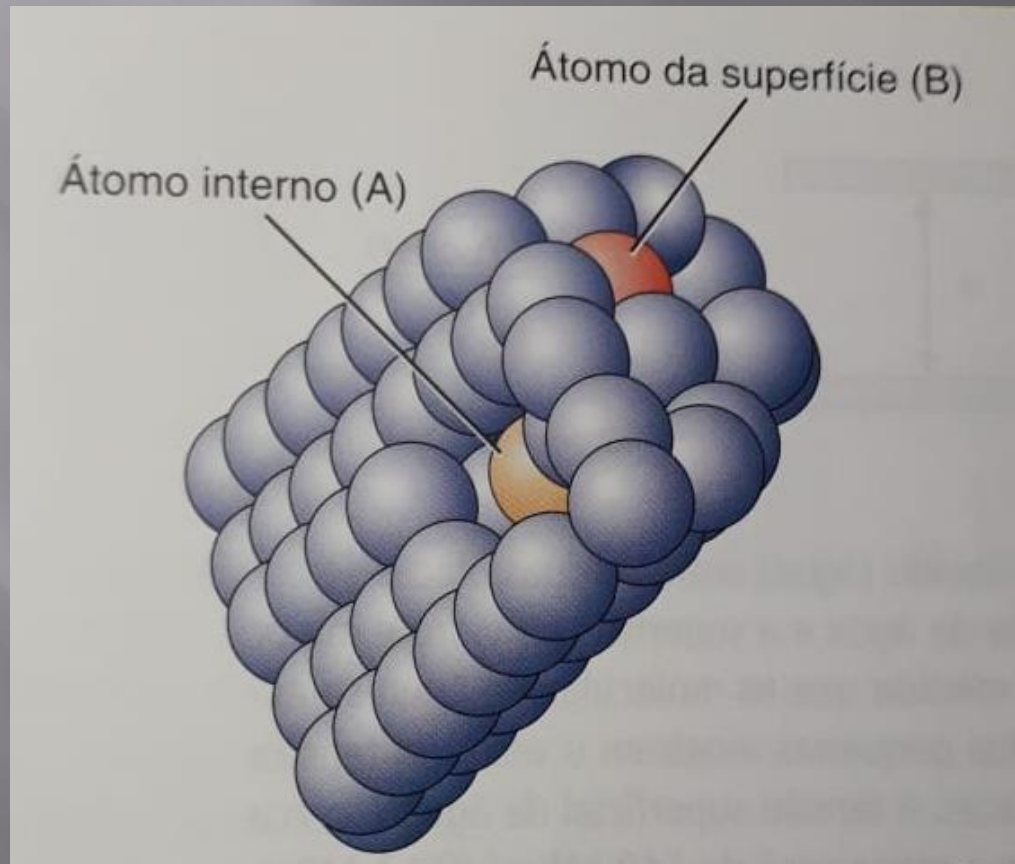


Adesão



Composição das superfícies
Tensão superficial
Ângulo de contato

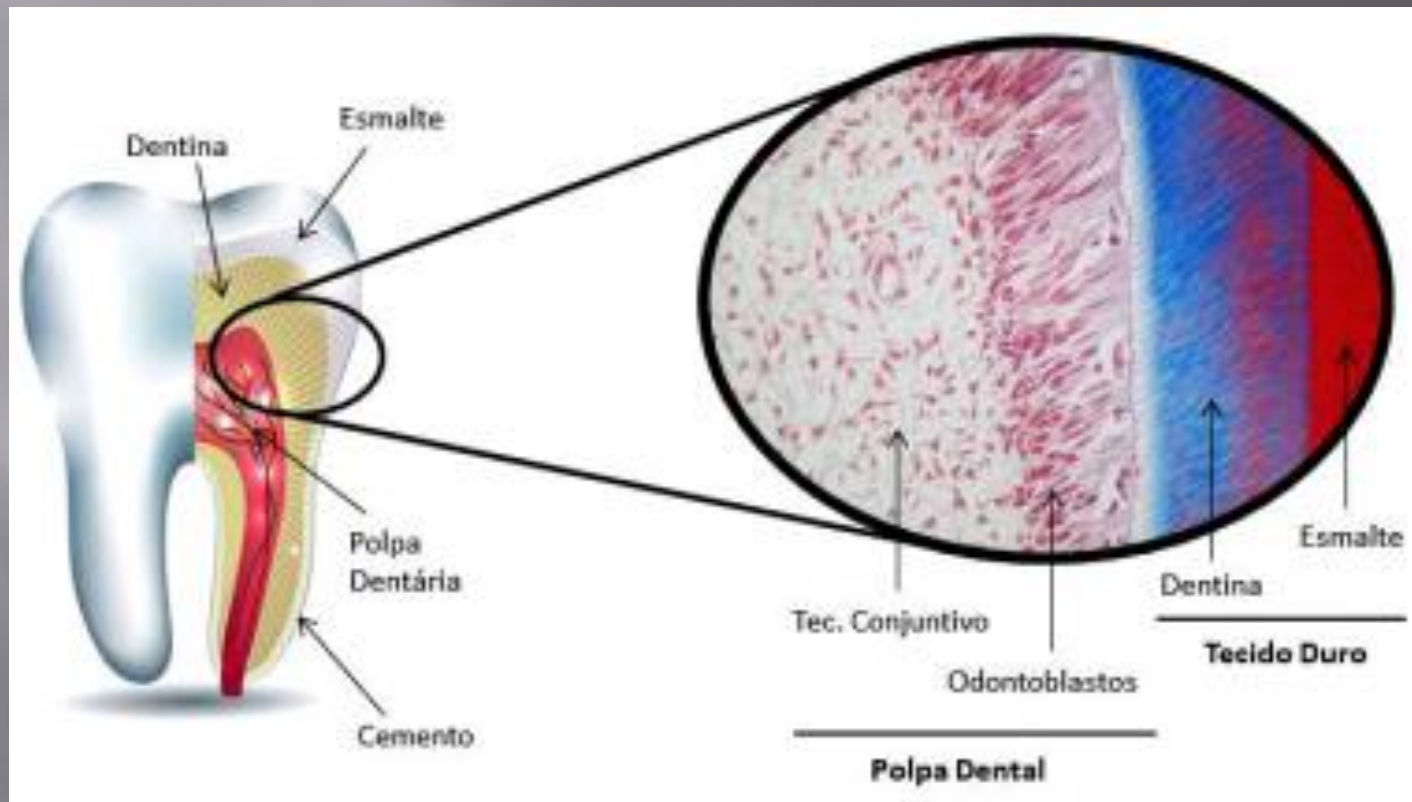
Energia de superfície



Ângulo de contato



Adesão – estruturas diferentes



CARACTERÍSTICA HISTOLÓGICA

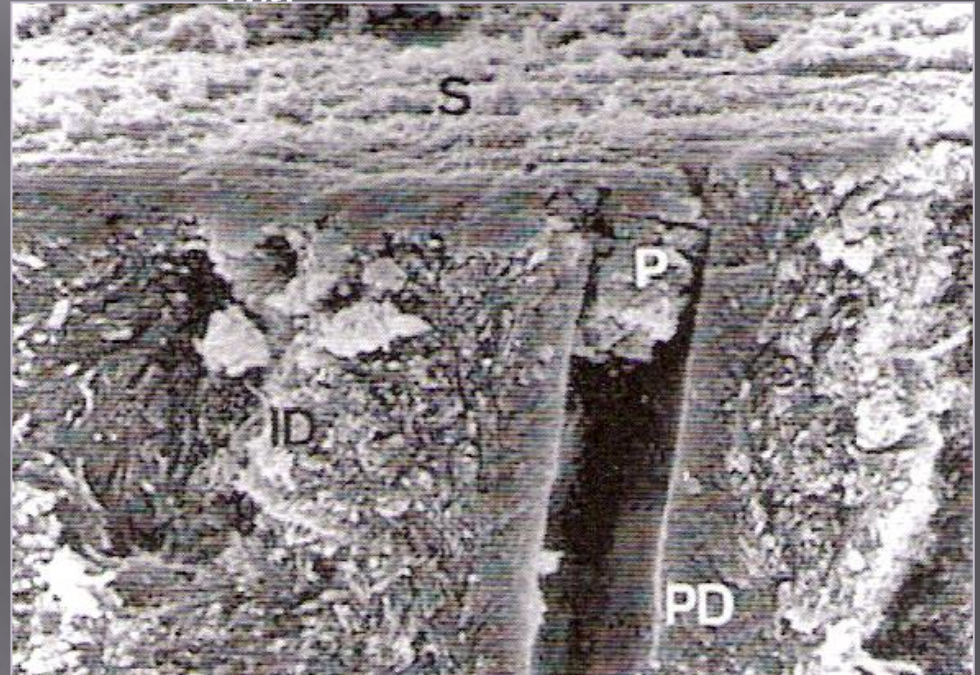
ESMALTE

- 96% MINERAIS
- 4% ÁGUA E
TRAÇOS
PROTÊICOS
- PRISMÁTICO



DENTINA

- 70% HIDROXIAPATITA
- 18% COLÁGENO
- 12% ÁGUA
- TUBULAR (PRESSÃO 30mm de
Hg)



ADESIVO DENTINÁRIO

QUÍMICA
MECÂNICA

HISTÓRICO

- ▣ 1951 → HAGGER - GPMD
- ▣ 1955 → BUONOCORE
 - ATAQUE ÁCIDO EM ESMALTE
- ▣ 1965 → BUONOCORE
 - ATAQUE ÁCIDO EM DENTINA
 - RAY BOWEN - COSMIC
- ▣ 1978 → TORNEY
 - PRIMER

ADESIVO DENTINÁRIO

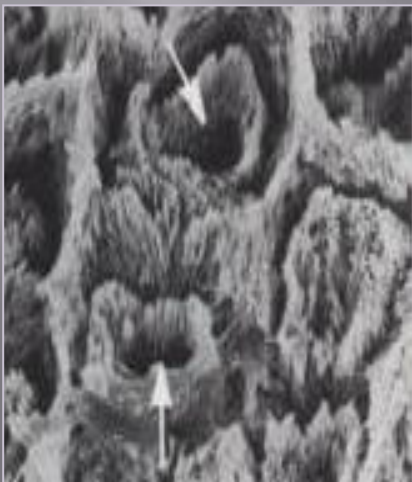
- ▣ CONDICIONADOR
- ▣ PRIMER
- ▣ ADESIVO OU AGENTE DE UNIÃO

CONDICIONADOR

- ▣ POLIACRÍLICO, MALEICO, EDTA
- ▣ *FOSFÓRICO*

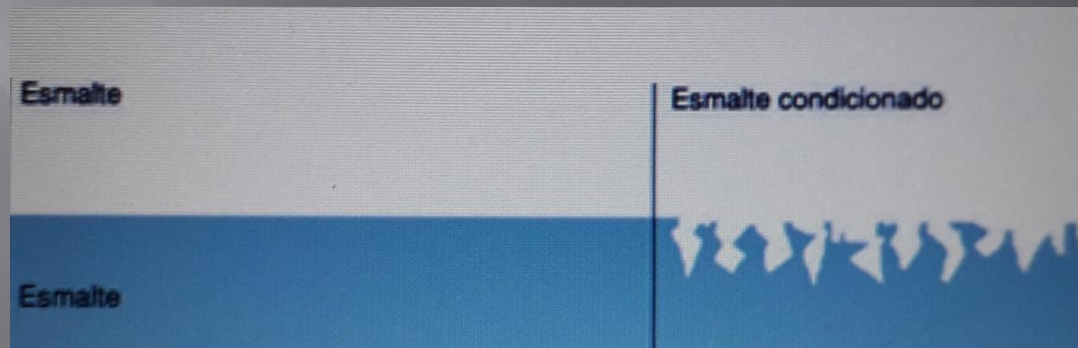


ESMALTE

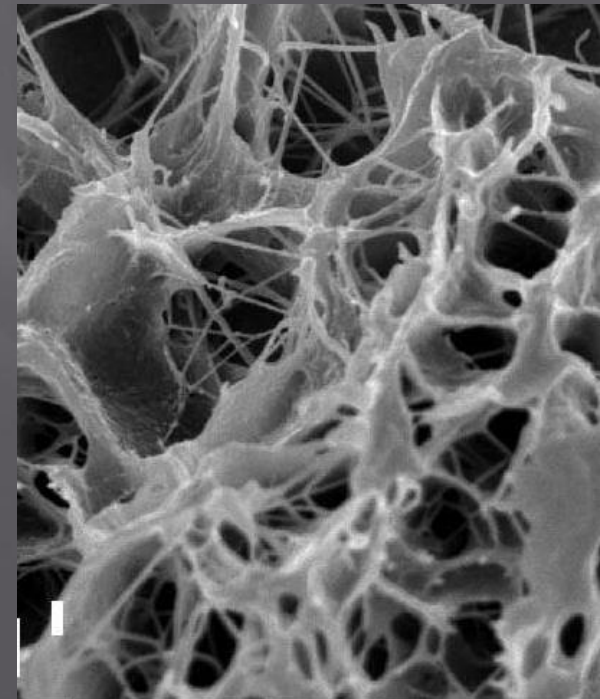
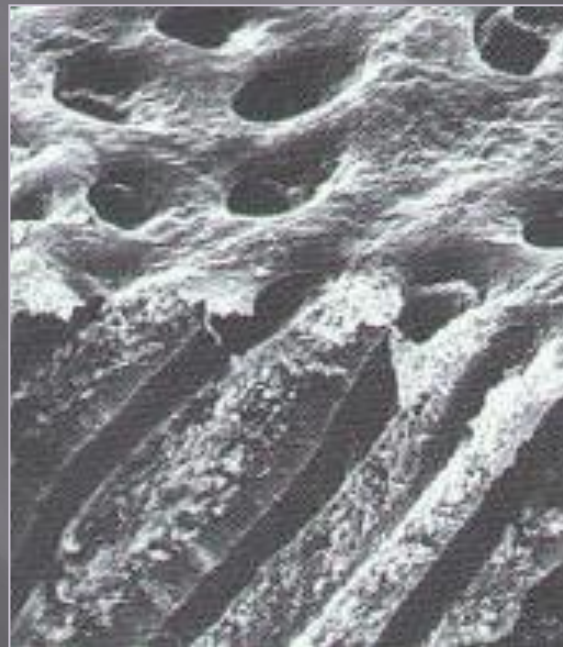
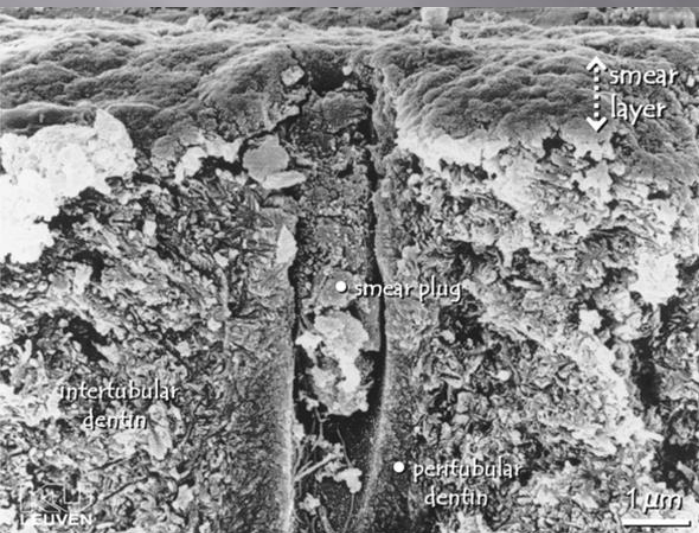
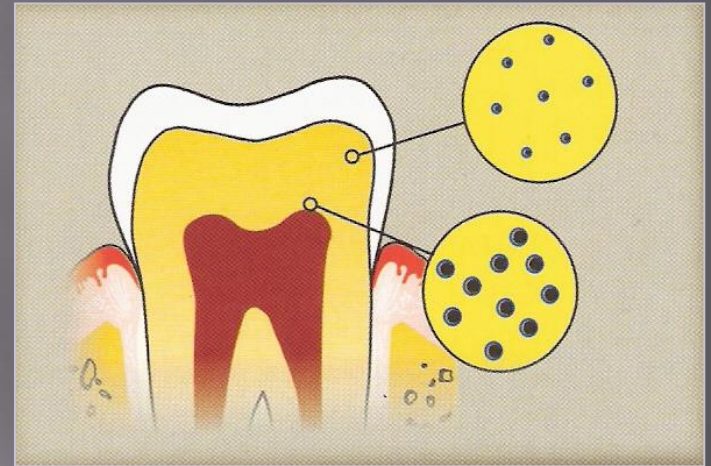


CARACTERÍSTICAS DA SUPERFÍCIE

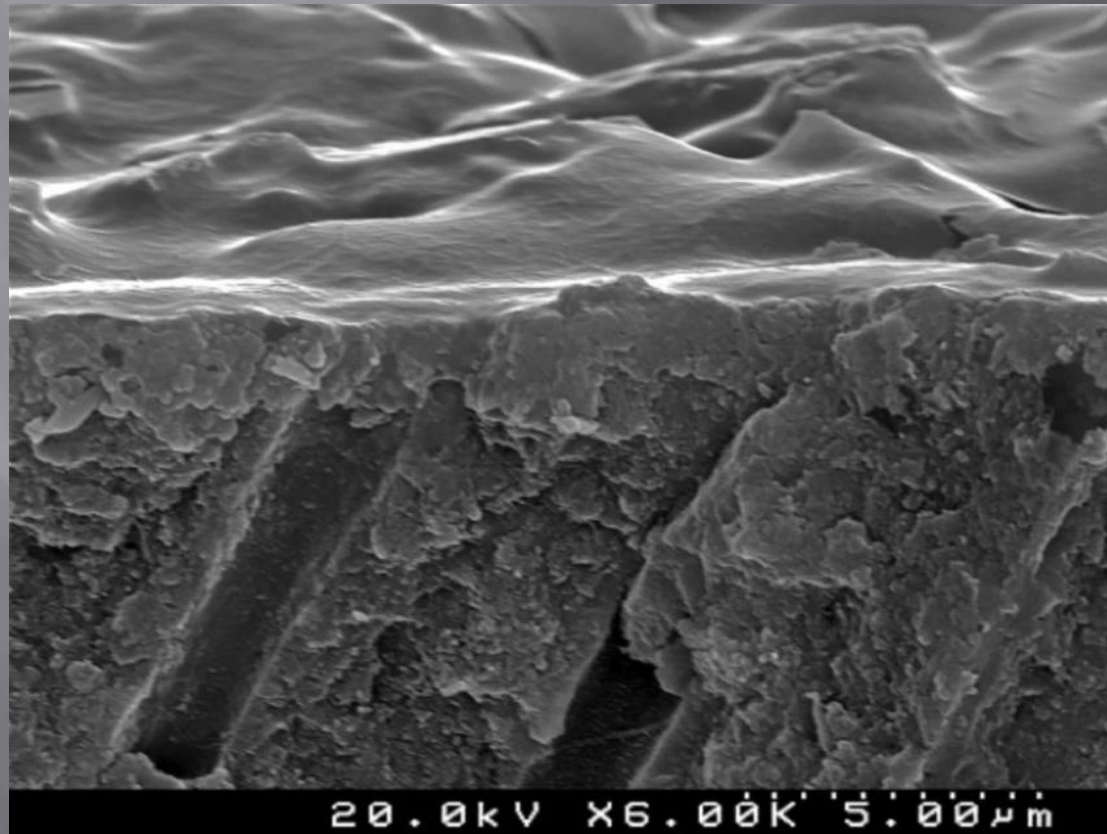
- ▣ RUGOSIDADE DA SUPERFÍCIE
- ▣ ENERGIA DE SUPERFÍCIE
- ▣ POROS INTERFACIAIS



DENTINA

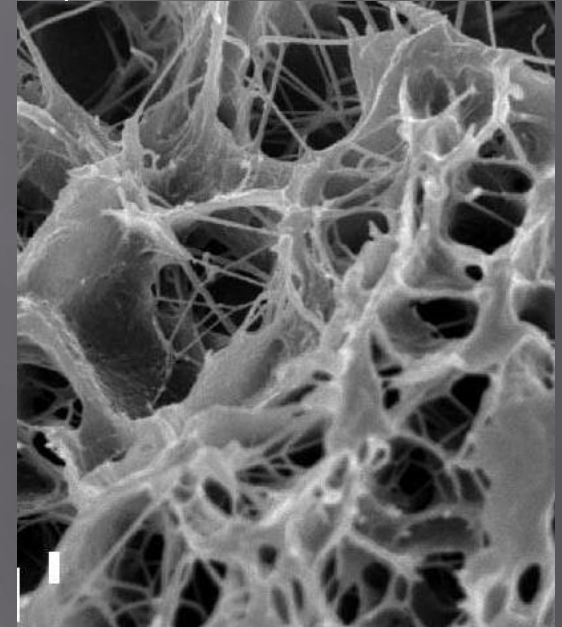


Tipo de ácido – remoção smear



PRIMER

- ▣ BIFUNCIONAL(SUBSTRATO E RESINA)
- ▣ MONOMERO HIDROFILICO
- ▣ SOLVENTE
 - Promovem evaporação
 - Espalham monômero
 - Diluir os reagentes
- ▣ TIPOS :
HEMA, PMDM, NPG-GMA, NTG-GMA, GPDM,
10-MDP



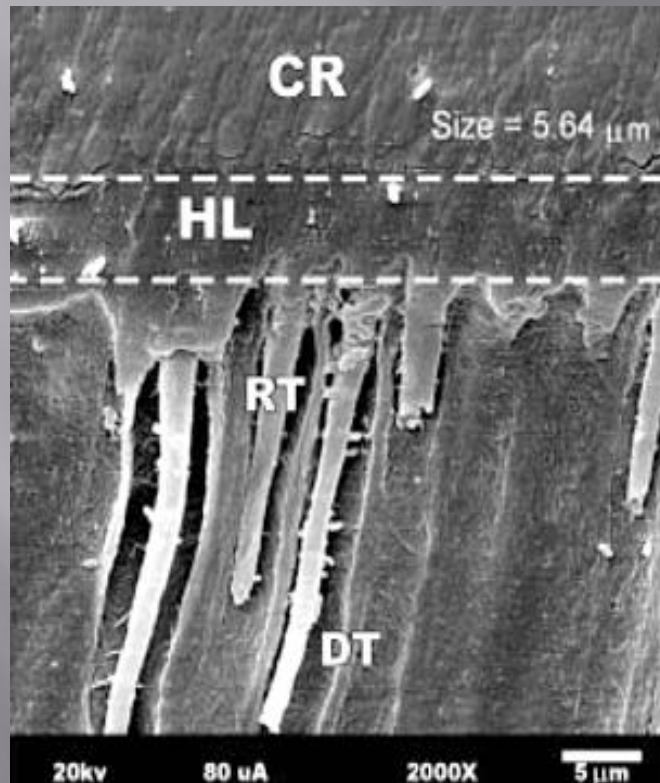
ADESIVO

- ▣ LIGAÇÃO QUÍMICA À FASE ORGÂNICA E INORGÂNICA
- ▣ *RETENÇÃO MECÂNICA*

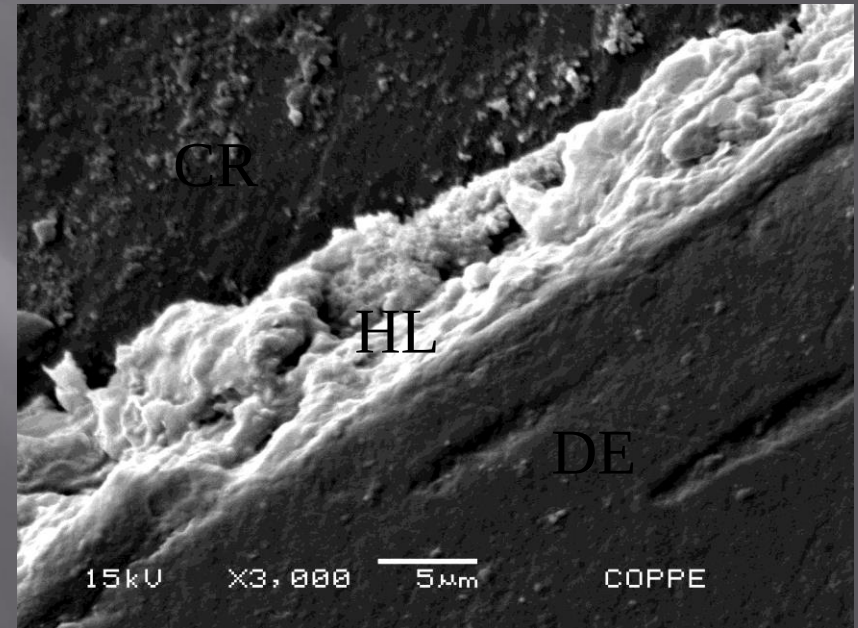
ADESIVO

- Monômeros dimetacrilatos - principais
 - Bis-GMA
 - UDMA (uretano dimetacrilato)
- Monômeros dimetacrilatos – diluentes
 - TEGDMA (triетенoglicol dimetacrilato)
 - EDMA (etileno glicol dimetacrilato)
- Diketona – iniciador
- Partículas de carga – sílica

ADESÃO EM DENTINA

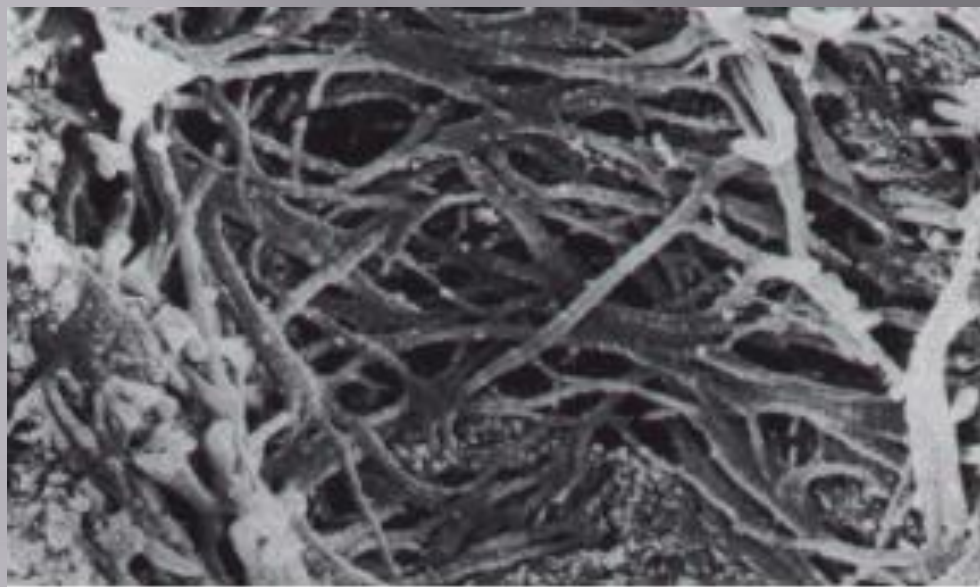


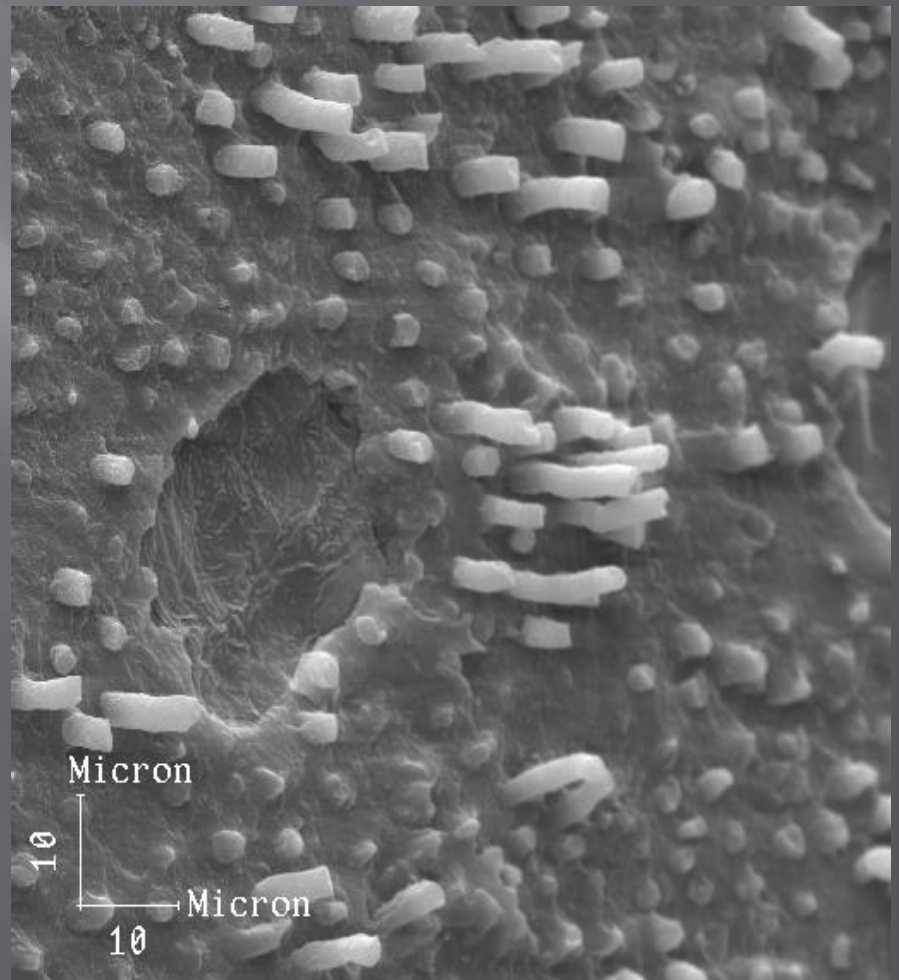
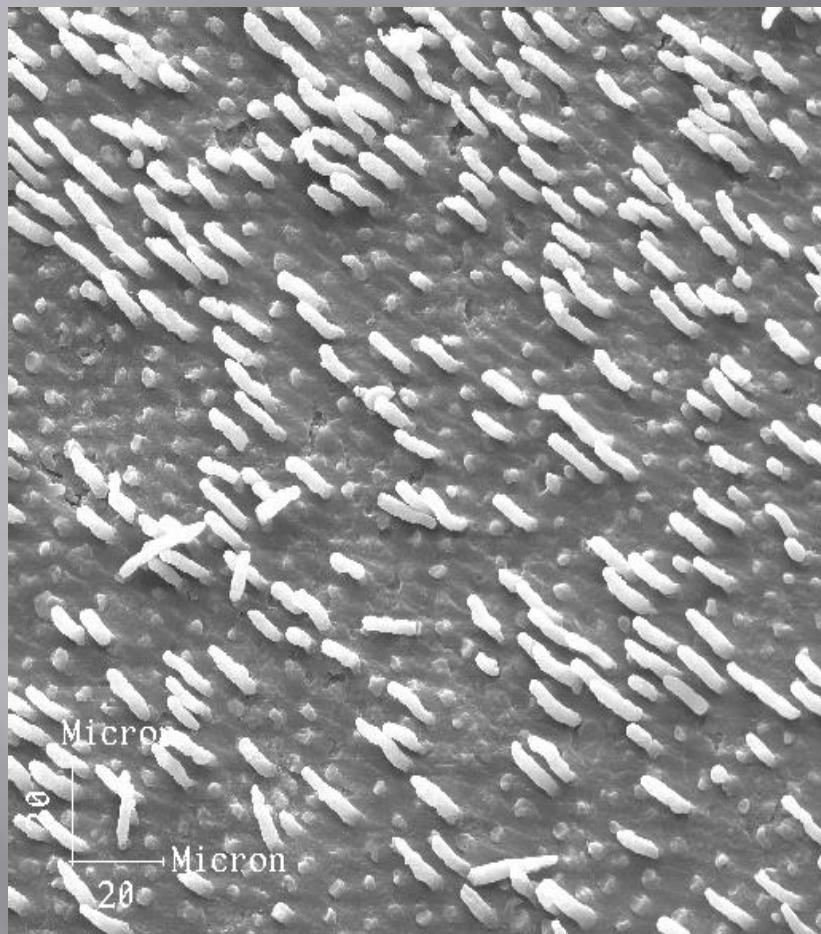
CR- Resina RT – tags
HL - Camada híbrida

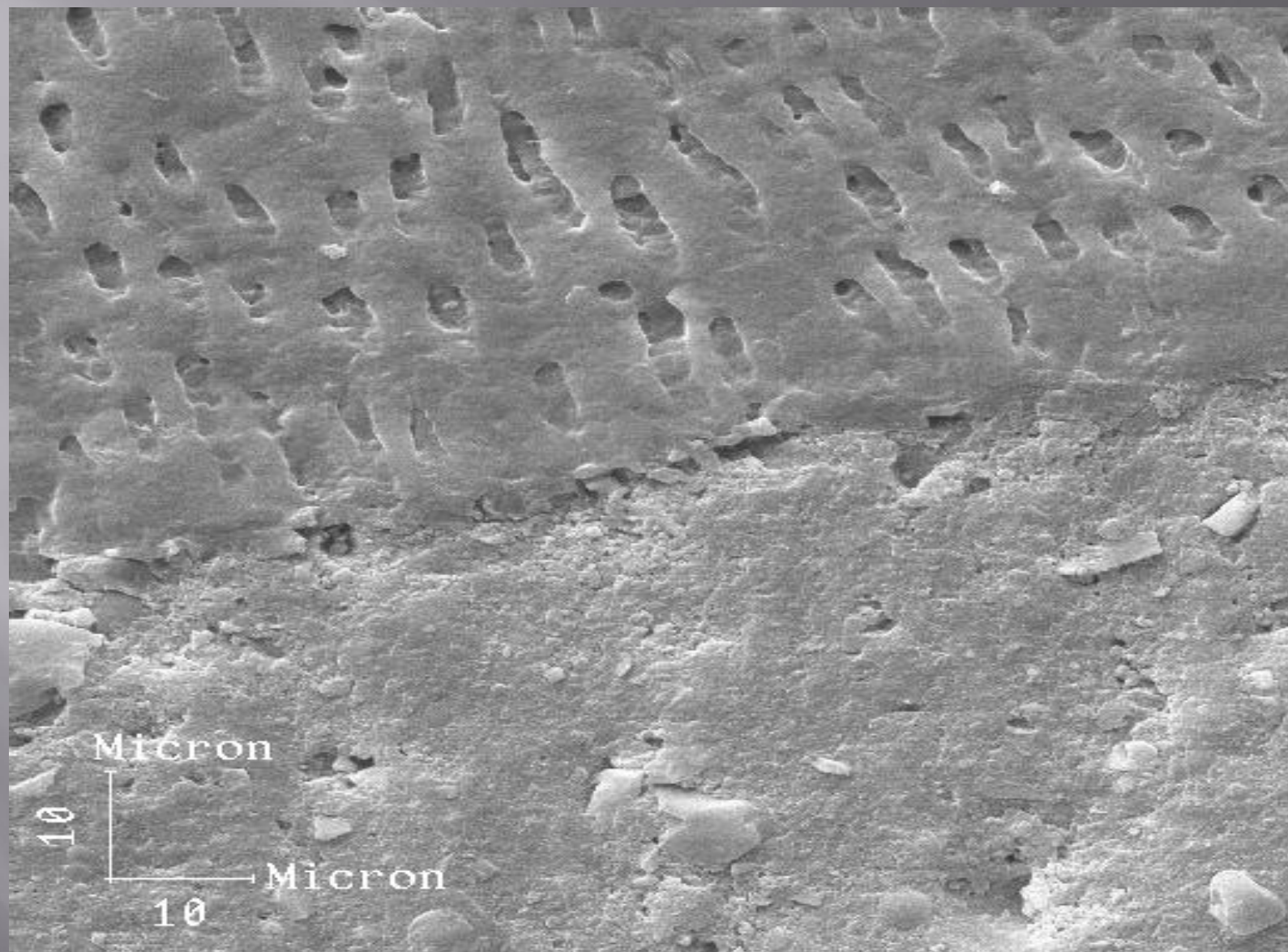


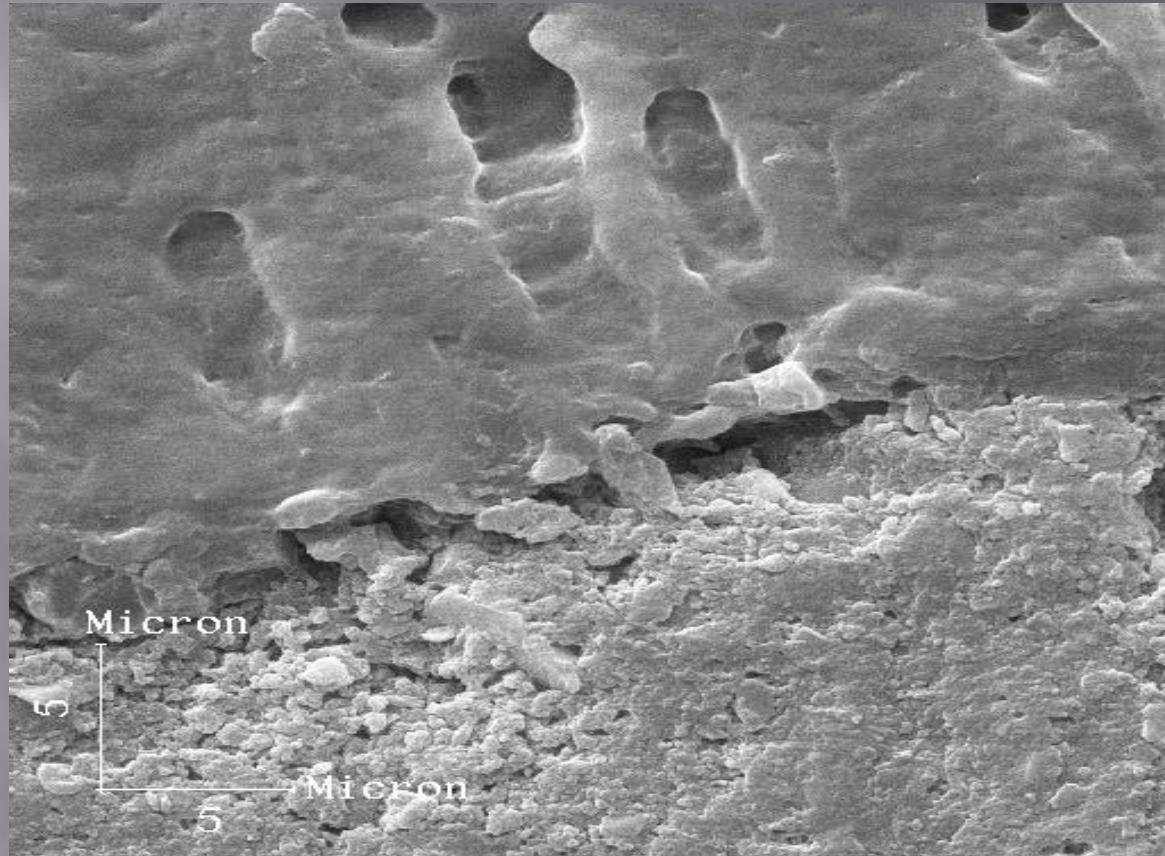
DE - dentina
DT - tubulo dentinario











Ataque ácido total camada de até $6\mu\text{m}$
Falha operacional

ADESIVO IDEAL

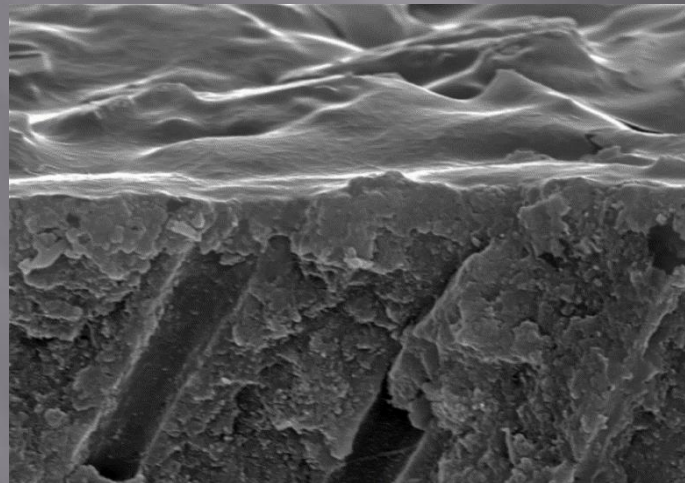
- ▣ ADESÃO EM MEIO AQUOSO
- ▣ UNIÃO INSTANTÂNEA
- ▣ BIOCOMPATIBILIDADE
- ▣ RESISTIR A CONTRAÇÃO DE POLIMERIZAÇÃO
- ▣ COEF. EXP. LINEAR SEMELHANTE AO DENTE
- ▣ BOA RESIST. CISALHAMENTO
- ▣ HIDROFILICO ANTES E HIDROFOBO APÓS A POLIMERIZAÇÃO

CLASSIFICAÇÃO

- ▣ Quanto a geração
- ▣ Tipo de solvente
- ▣ Tipo de ativação
- ▣ Presença de carga
- ▣ Mecanismo de ação
- ▣ Numero de passos
- ▣ Número de frascos

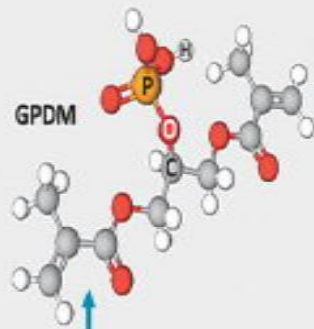
MECANISMO DE AÇÃO

Mantém Modifica Remove



Resistência
adesiva
Sensibilidade
Proteção pulpar

Timeline of DENTAL ADHESION

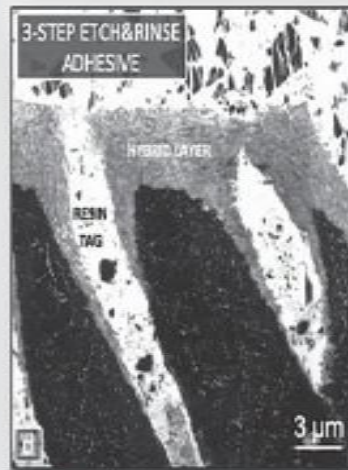


1st GENERATION

1955
Buonocore's
ACID-ETCH TECHNIQUE



1982
HYBRID LAYER



5th GENERATION

3-E&Ra → 2-E&Ra
NANO-LEAKAGE

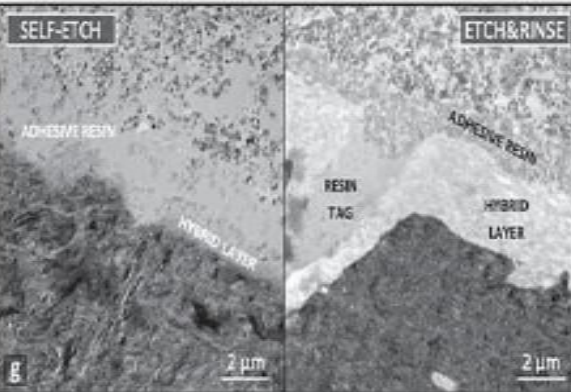
Micro-mechanical
interlocking

conditioner
primer

WATER WET-BONDING (acetone)
GENTLE DRY-BONDING (ethanol/water)

mid 1990's

UNIVERSAL adhesive



7th GENERATION

late 1990's
2-SEa → 1-SEa
Strong (pH<1)
Intermediary strong (pH=1.5)
MILD (pH=2)
Ultra-mild (pH>2.5)

6th GENERATION

8th GENERATION

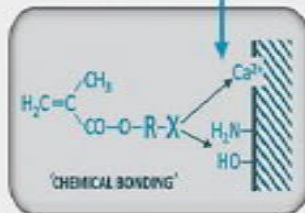
2010
UNIVERSAL ADHESIVE (Ua's)
2-E&R Ua
1-SE Ua
E&R_{nanolayer}/2-SE_{Etch&Seal} Ua

ionic binding with nano-layering

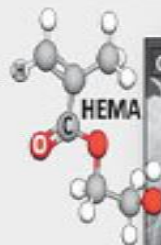
SELF-ADHESIVE
restoratives

1980 - early 1990's

2nd GENERATION



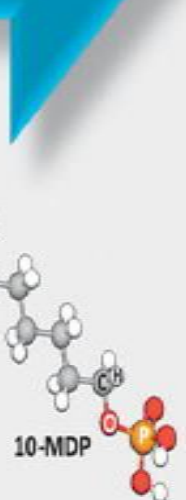
3rd GENERATION



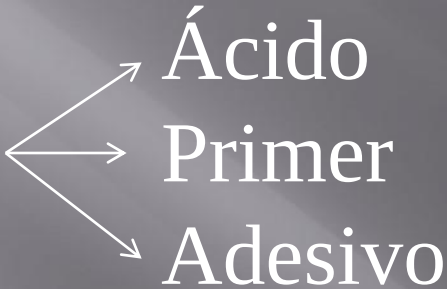
4th GENERATION

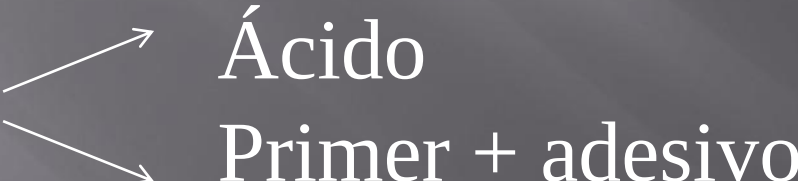


10-MDP



CONDICIONAMENTO ÁCIDO TOTAL

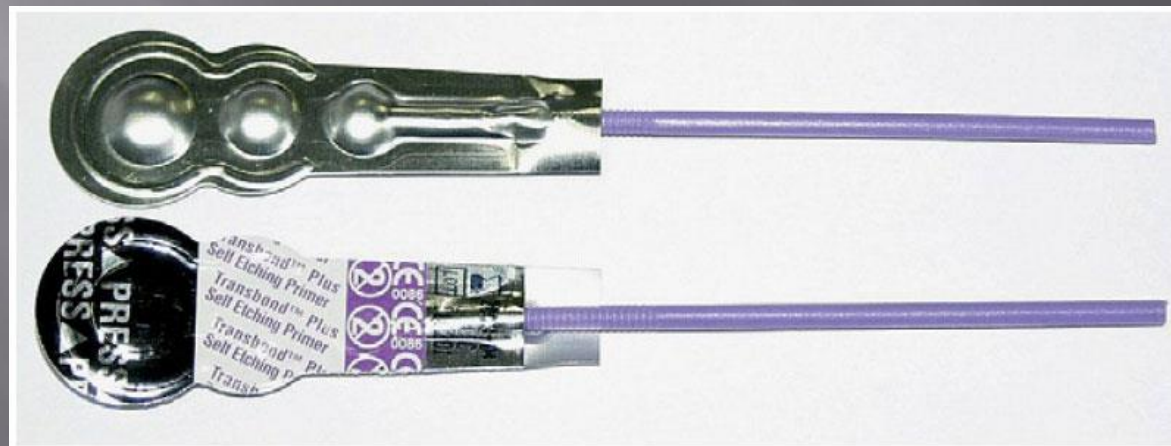
- ▣ 3 PASSOS 
 - Ácido
 - Primer
 - Adesivo

- ▣ 2 PASSOS 
 - Ácido
 - Primer + adesivo

Adesivos autocondicionantes



Monômeros ácidos



AUTOCONDICIONANTE

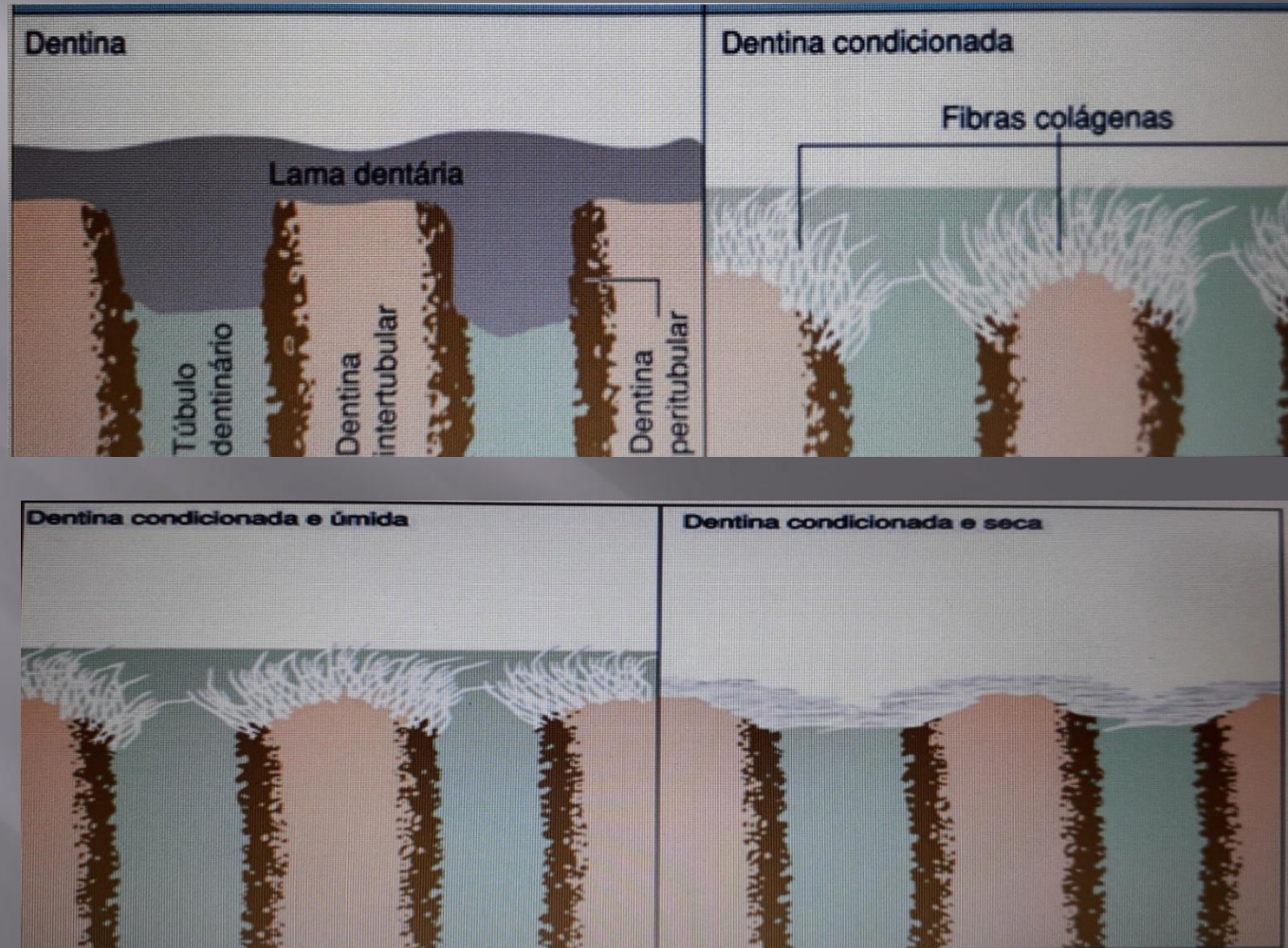
- ▣ 2 PASSOS 
 - Ácido + primer
 - Adesivo

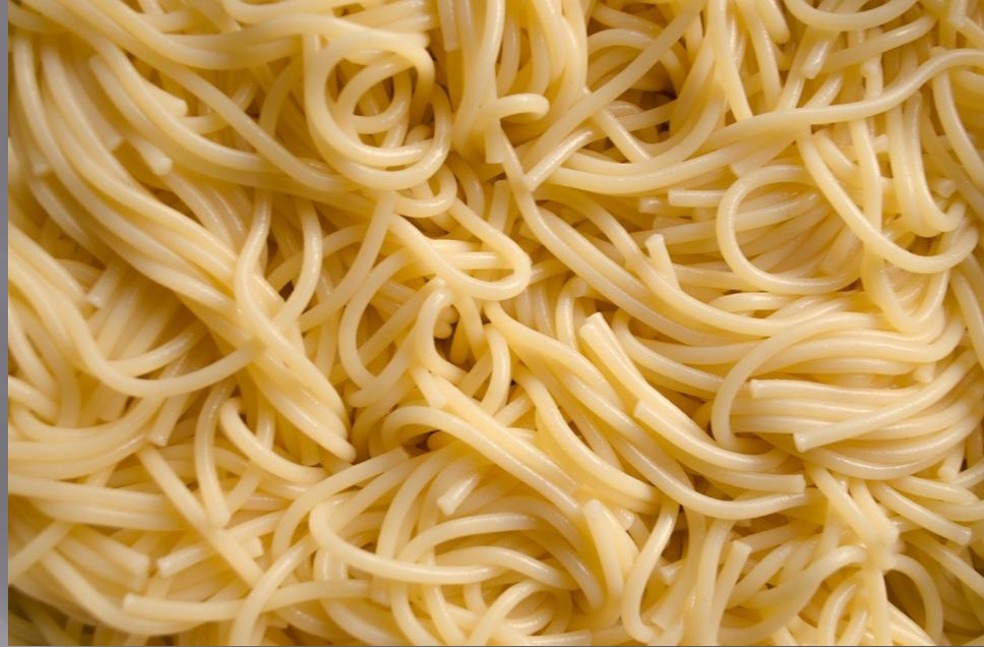
- ▣ PASSO ÚNICO Ácido+primer+adesivo

- ▣ COMBINADO Ácido (esmalte)

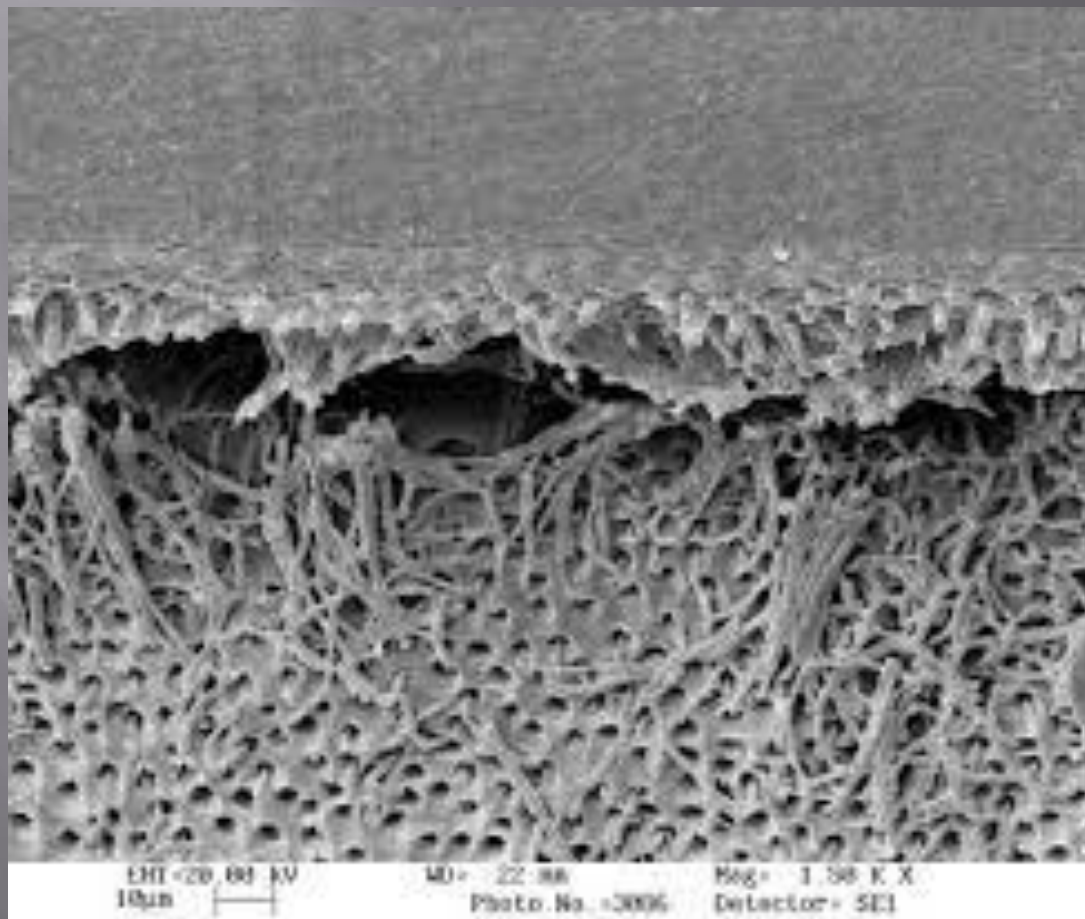
Passos clínicos

- ▣ Aplicação do ácido
 - ▣ Lavagem
 - ▣ Secagem
- tempo
forma



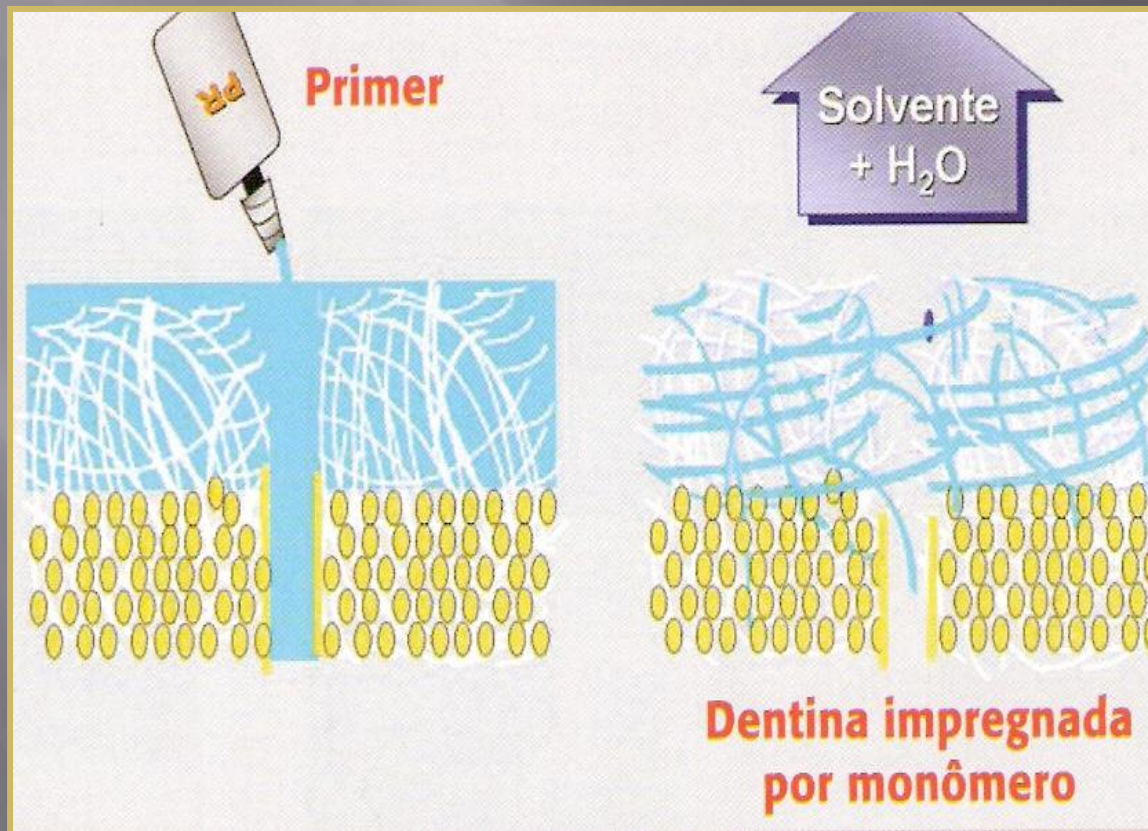


Excesso água



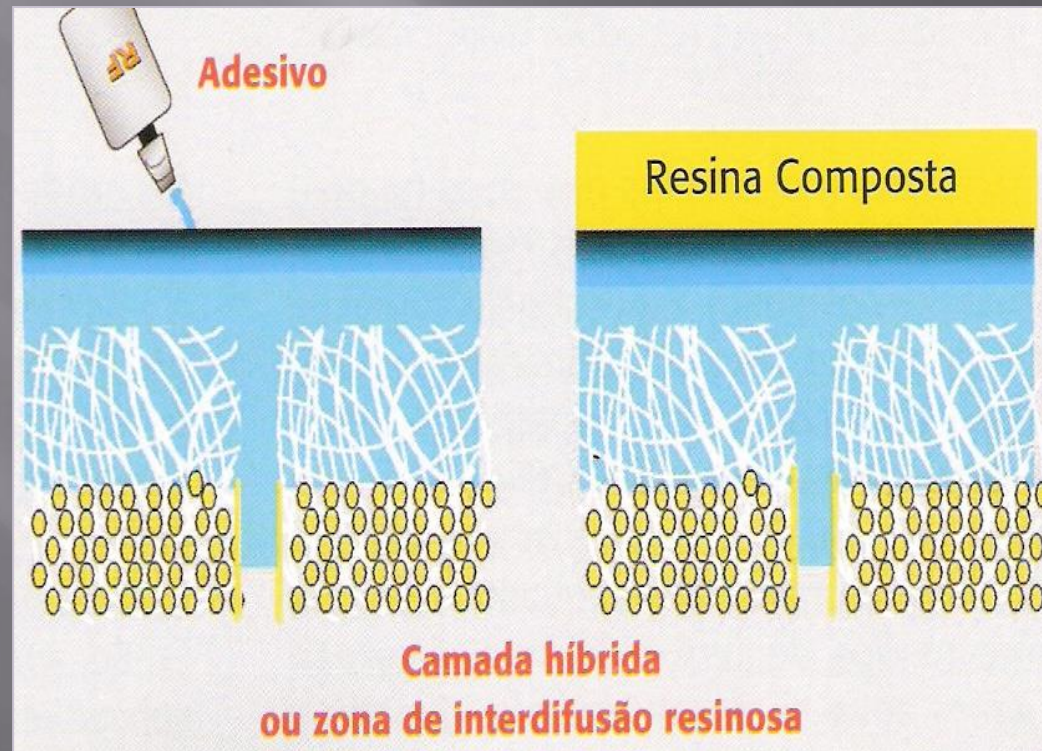
Primer

Esfregar
Pincel



ADESIVO

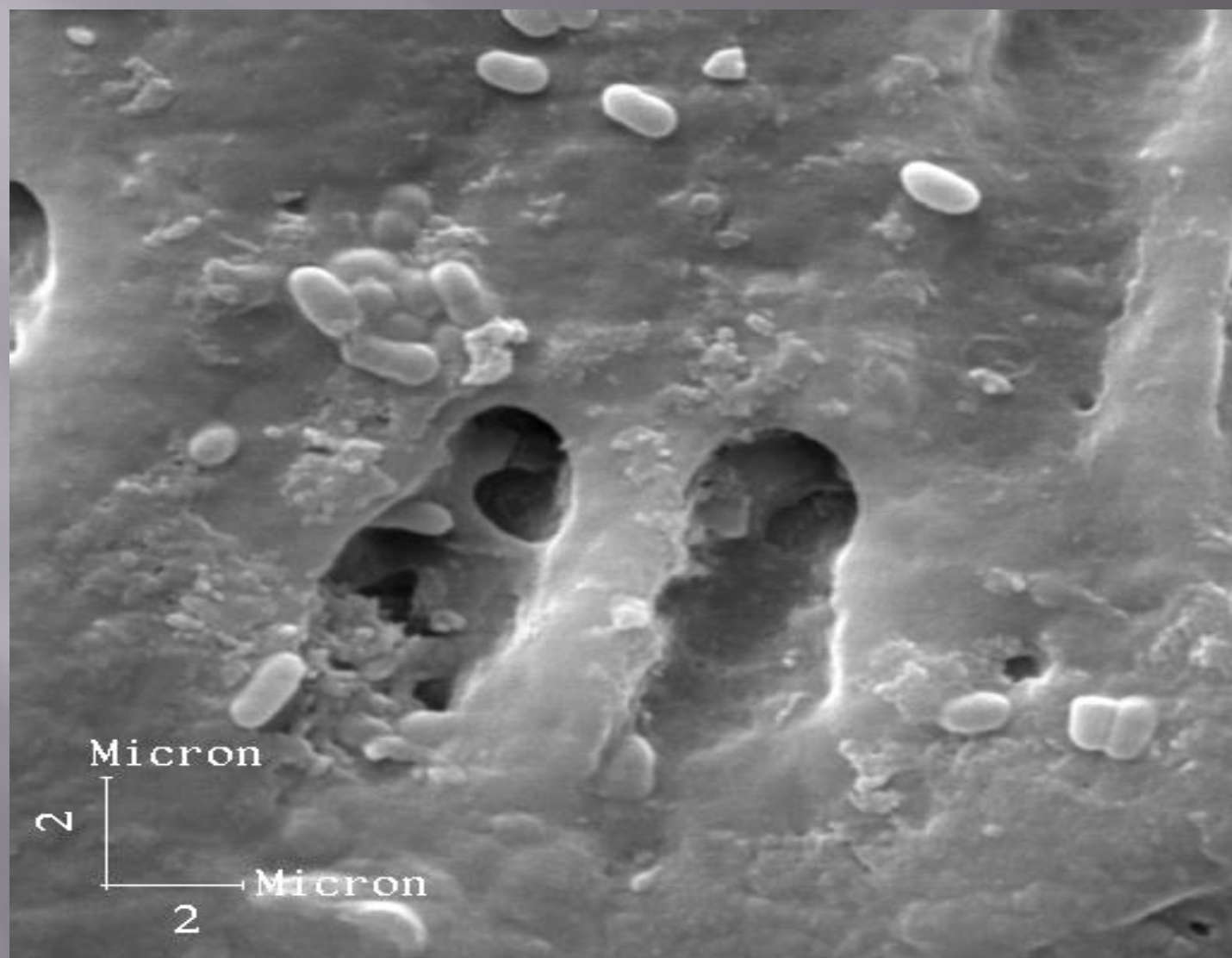
Adesivo
Jato de ar e
polimerização



BIOCOMPATIBILIDADE

▣ ATAQUE ÁCIDO TOTAL:
SIM OU NÃO ?

- TIPO DE SOLUÇÃO ÁCIDA
- CAPACIDADE DE SELAMENTO
SISTEMA RESTAURADOR
- ESPESSURA E TIPO DE DENTINA
REMANESCENTE



NUMERO DE FRASCOS/ETAPAS

	Auto-condicionantes		Condicionamento ácido prévio	
No. de Passos	1	2	2	3
Ácido				
Primer				
Adesivo				

ADESIVOS UNIVERSAIS

- ▣ UNIÃO: ESMALTE
DENTINA
LIGAS METÁLICAS
PORCELANA

10-MDP



Qual adesivo usar

