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MELAMINE FORMALDEHYDE NETWORKS WITH IMPROVED CHEMICAL RESISTANCE

CHEMICAL RESISTANCE
MELAMINE FORMALDEHYDE
NETWORKS WITH IMPROVED
CHEMICAL RESISTANCE

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NETWORKS WITH IMPROVED
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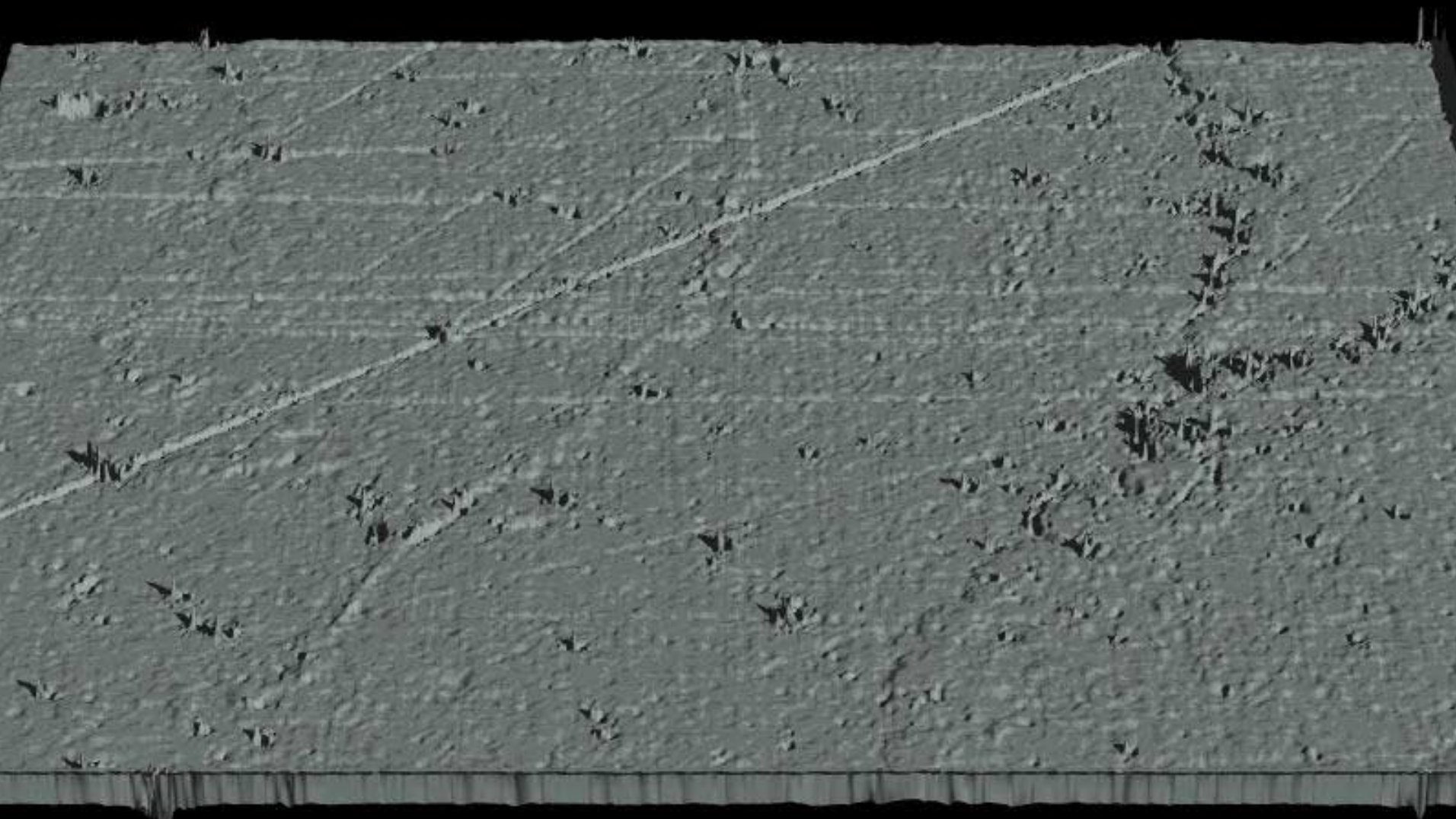
CHEMICAL RESISTANCE
MELAMINE FORMALDEHYDE
NETWORKS WITH IMPROVED

W. J. BLANK

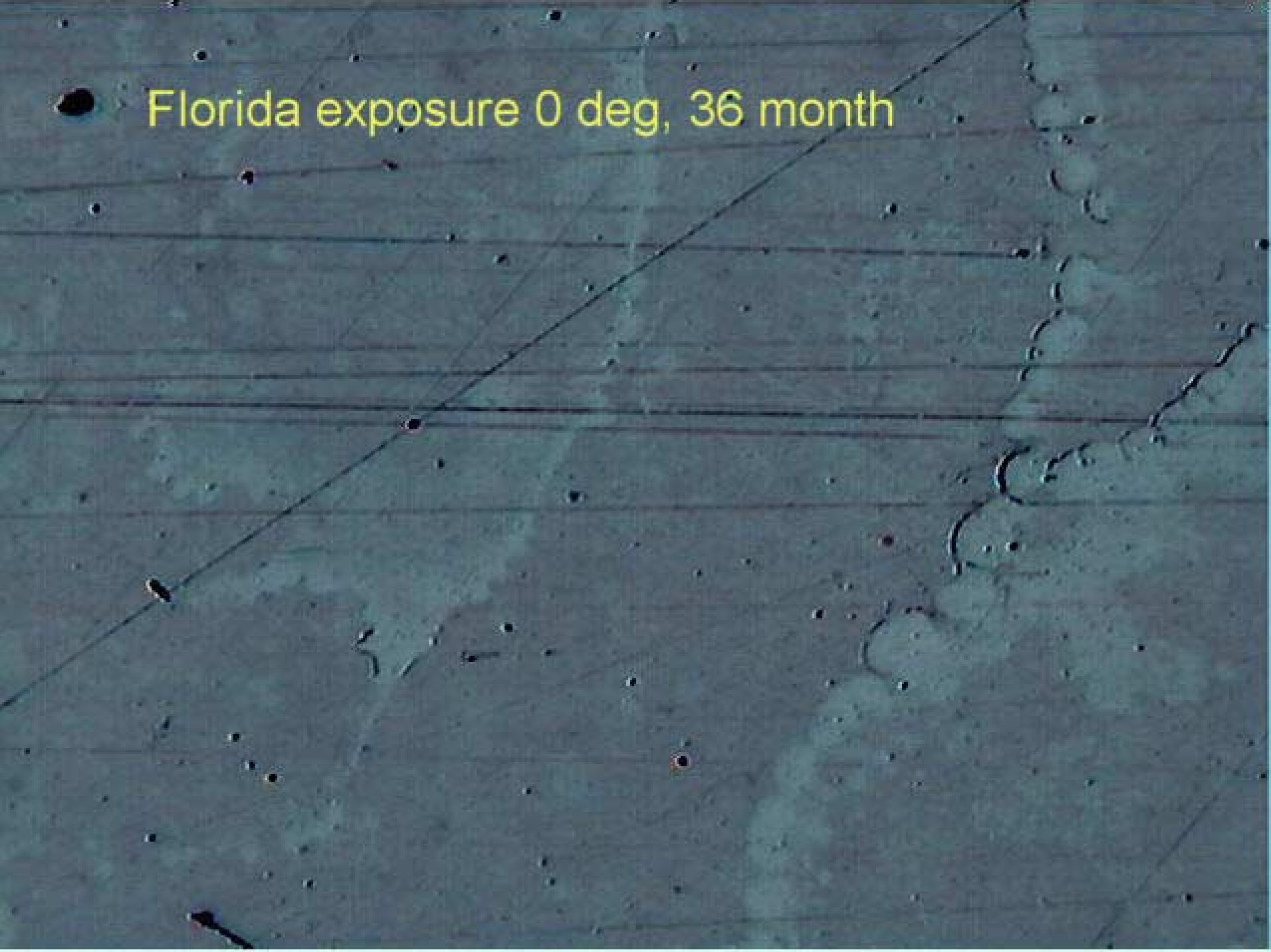
Z. A. HE

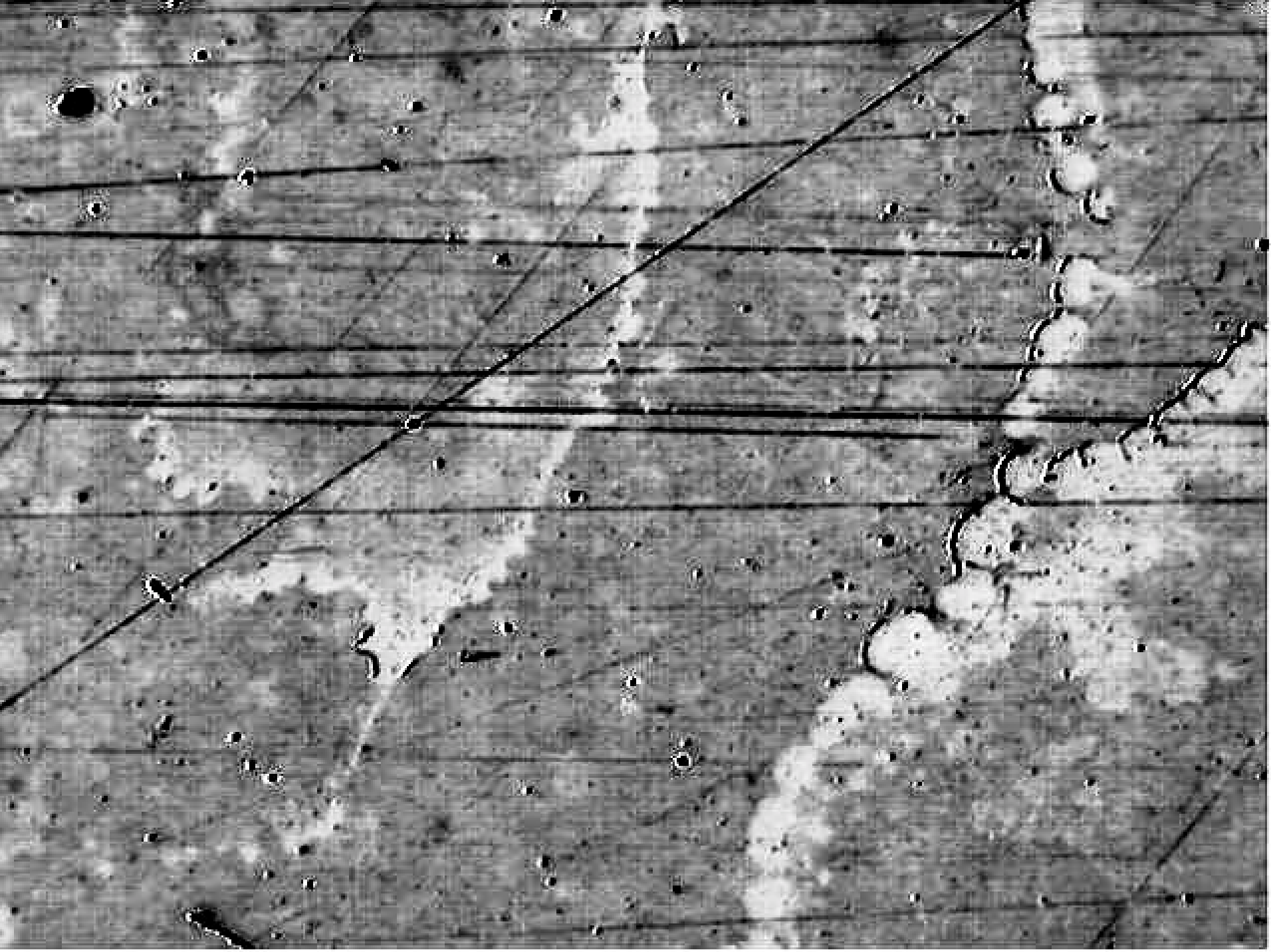
E. T. HESSELL

R. A. ABRAMSHE



Florida exposure 0 deg, 36 month

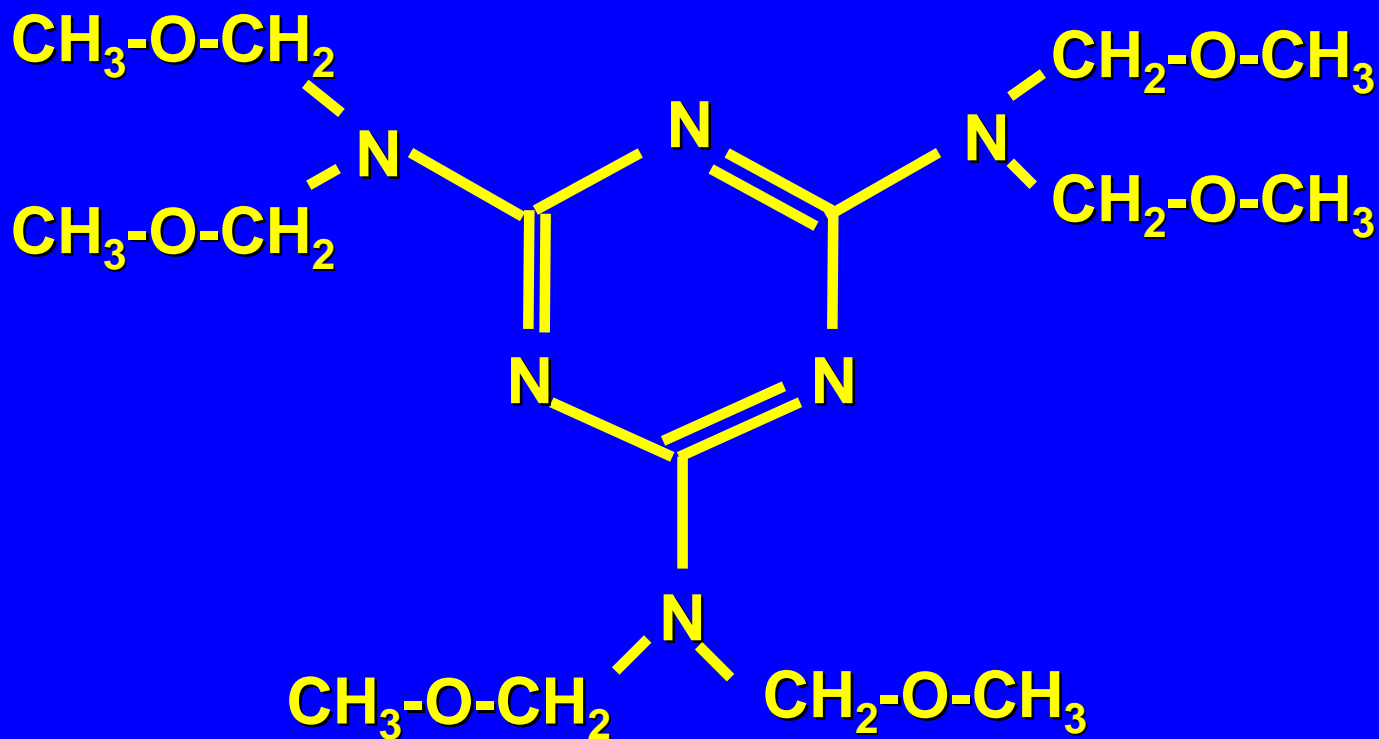


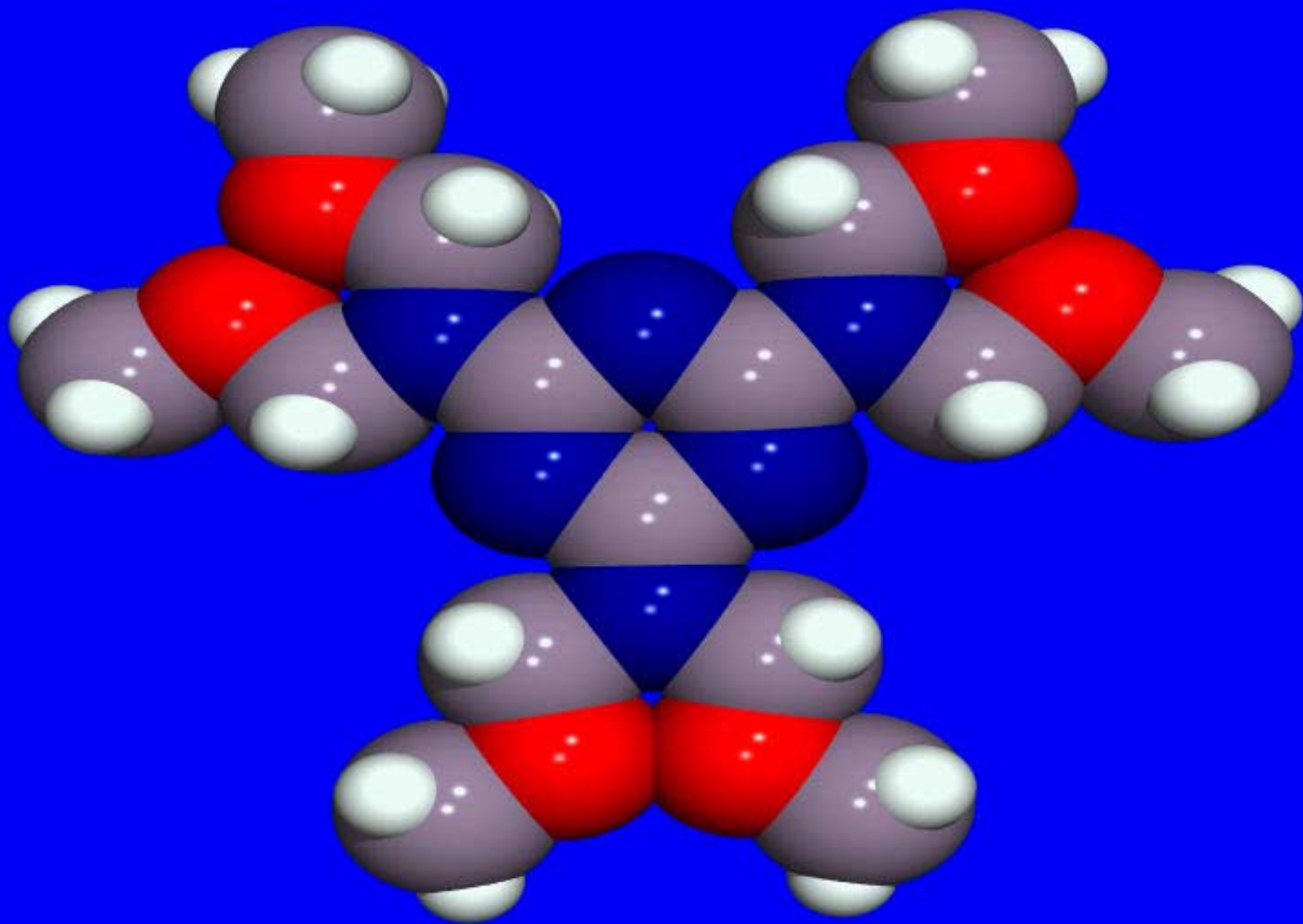


NETWORK STABILITY

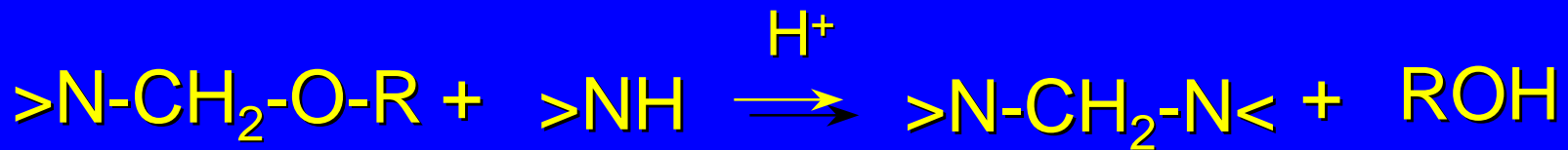
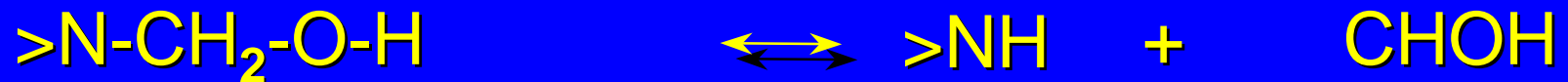
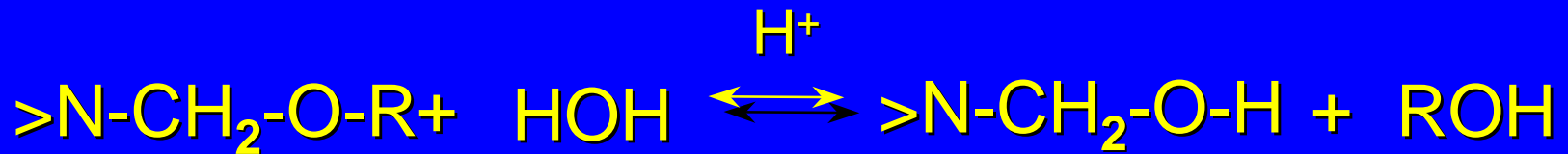
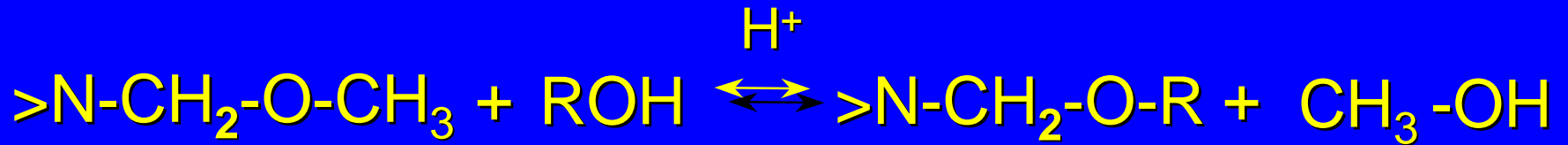
- AUTOMOTIVE CLEARCOAT - ACID RESISTANCE
 - IMBRITTEMENT
 - INTERCOAT ADHESION
- COIL COATING
 - OVERBAKE
 - CURE WINDOW
- LAMINATING
 - FLEXIBILITY

HIMMM

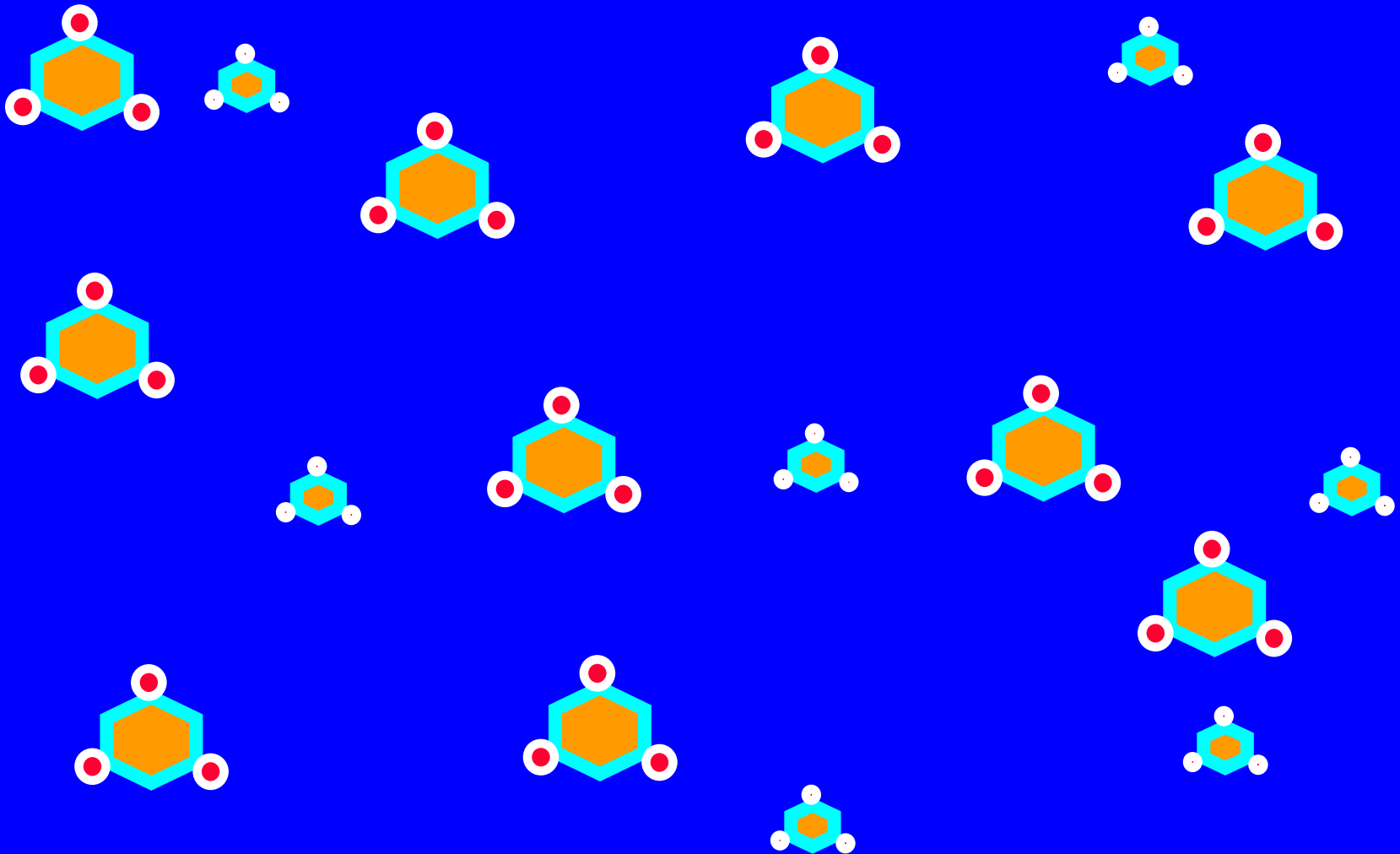




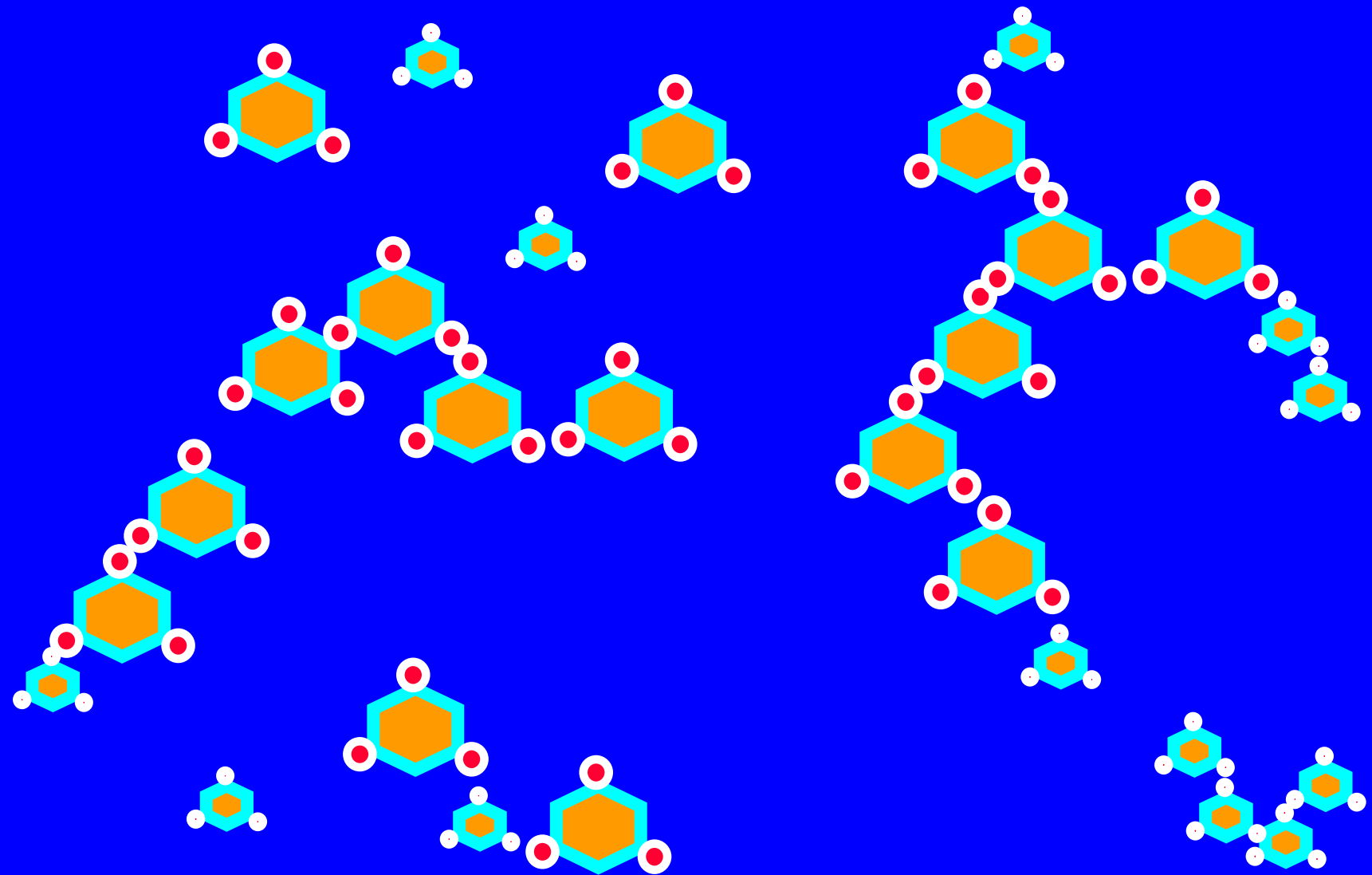
X-LINK and SELF-CONDENSATION



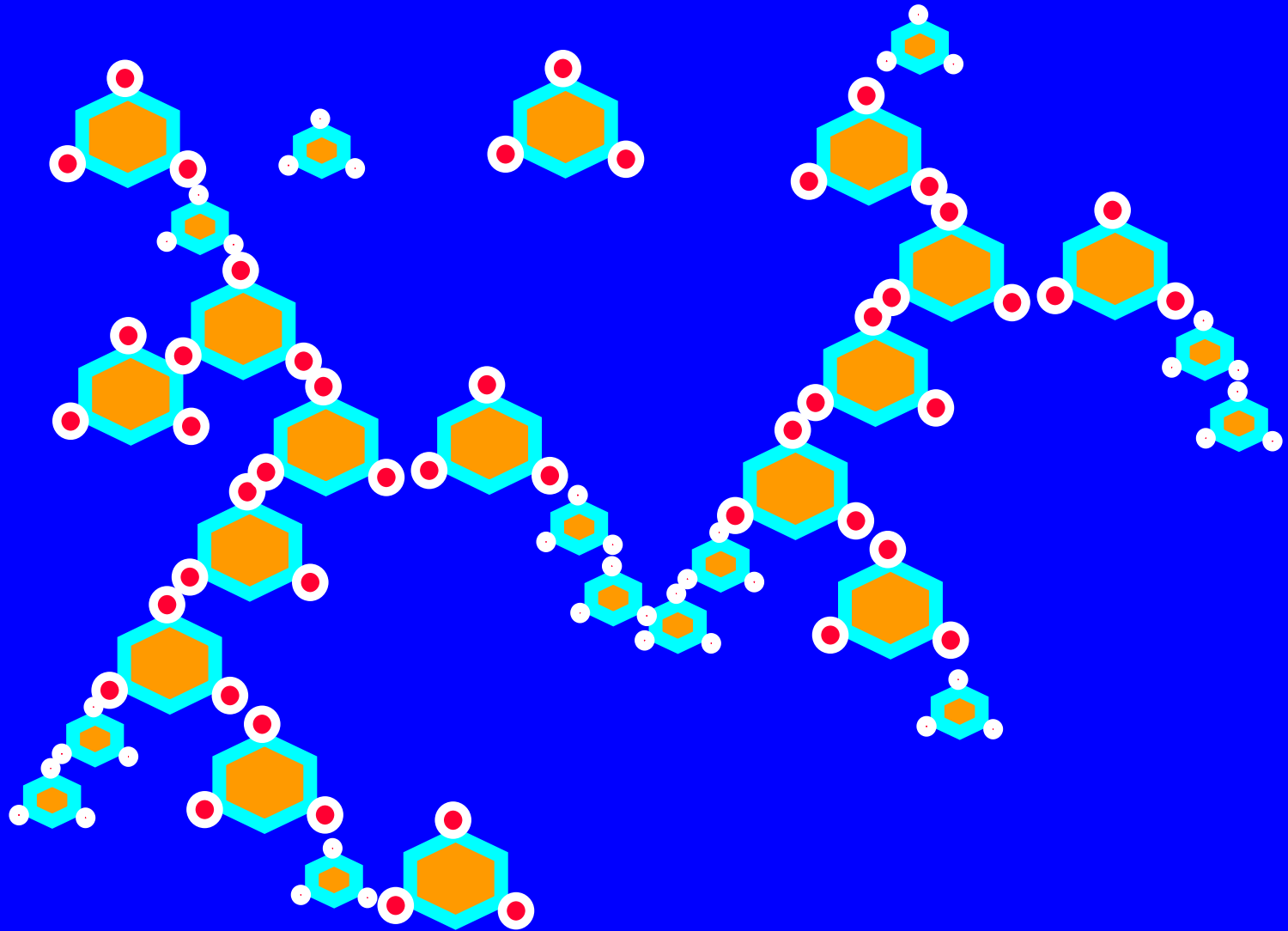
X-LINK and SELF-CONDENSATION



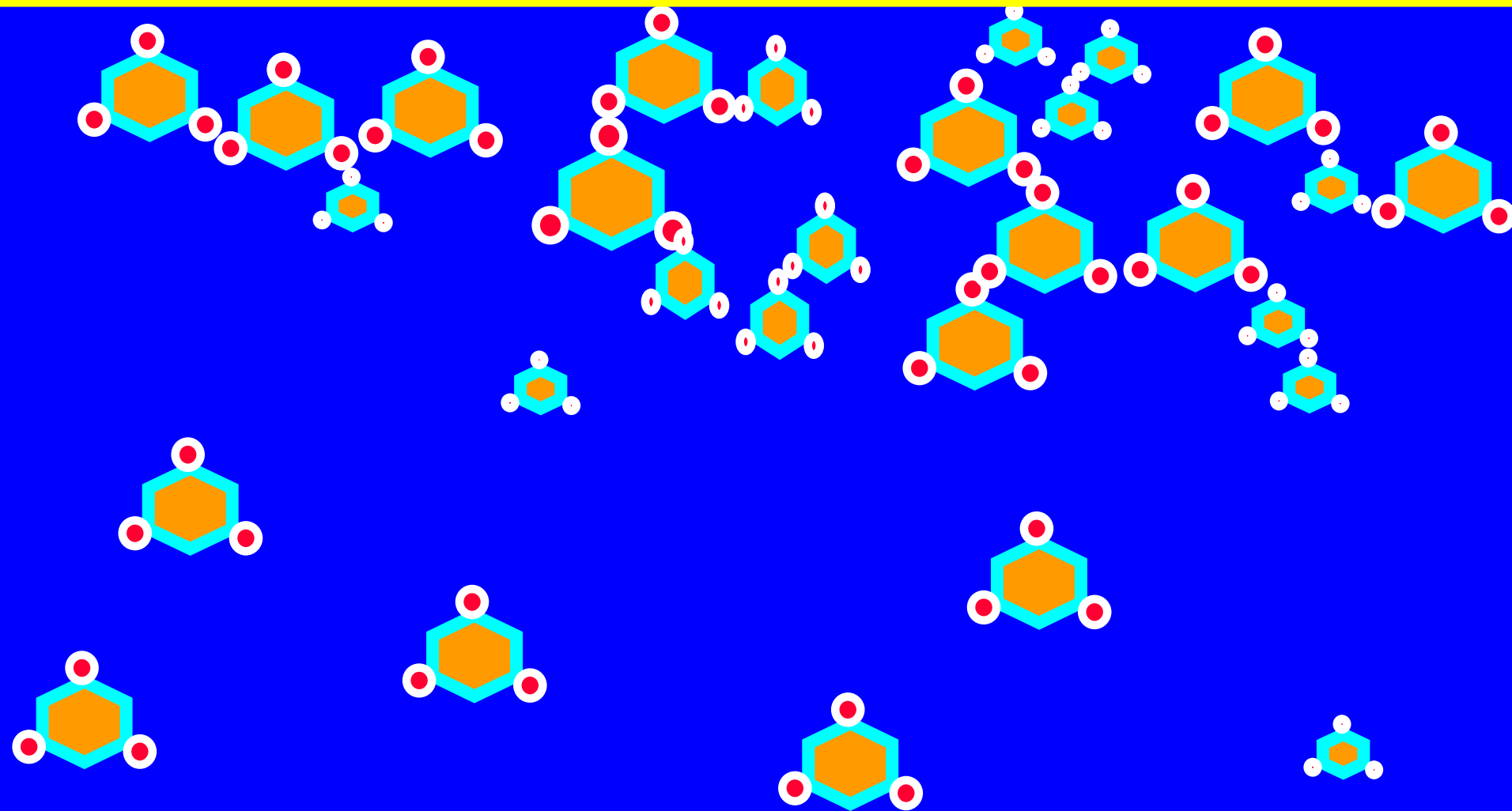
SELF-CONDENSATION



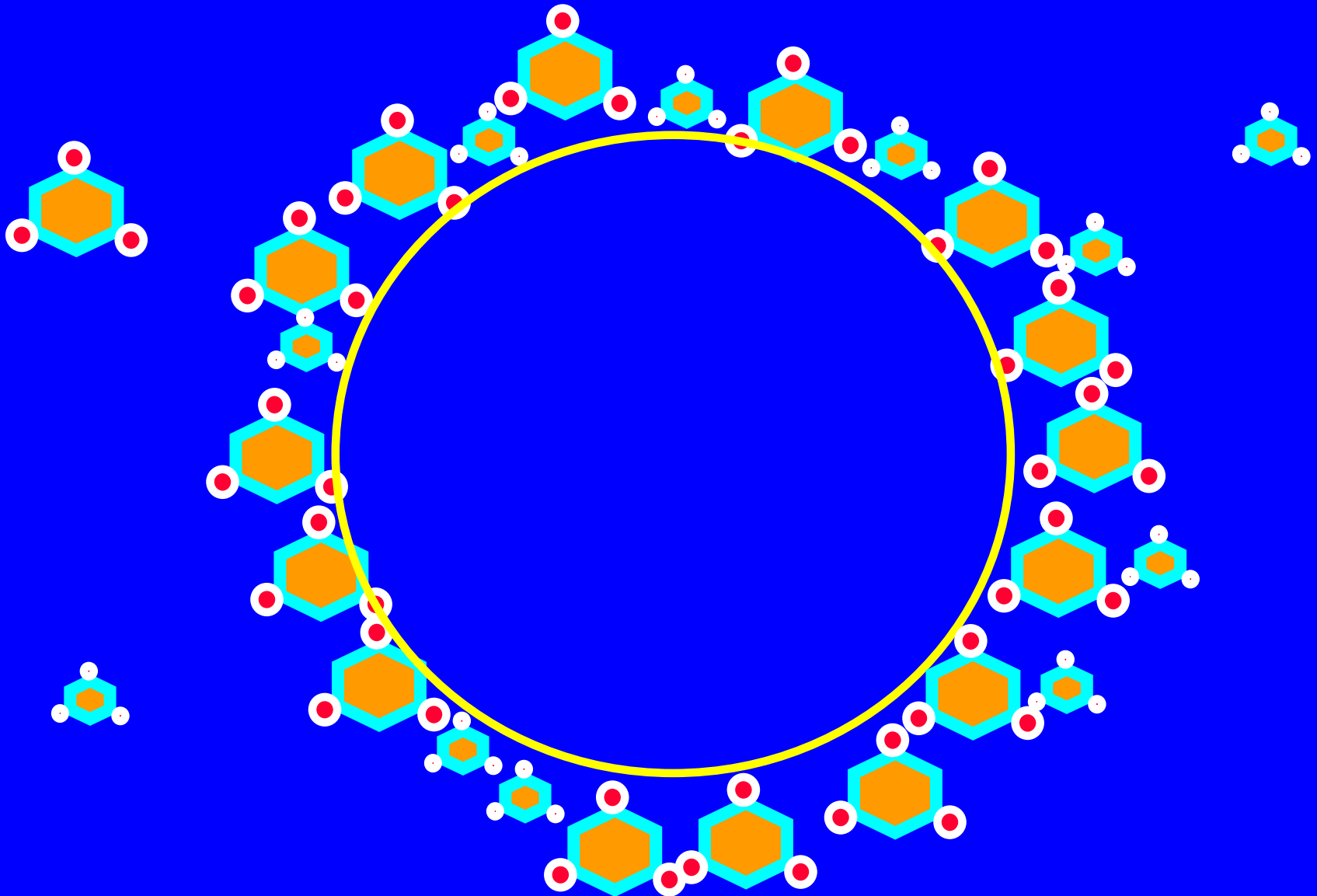
SELF-CONDENSATION



SELF-CONDENSATION



SELF-CONDENSATION



IMPROVED NETWORKS

REDUCED MELAMINE LEVEL - DUAL CURE

BLOCKED ISOCYANATES

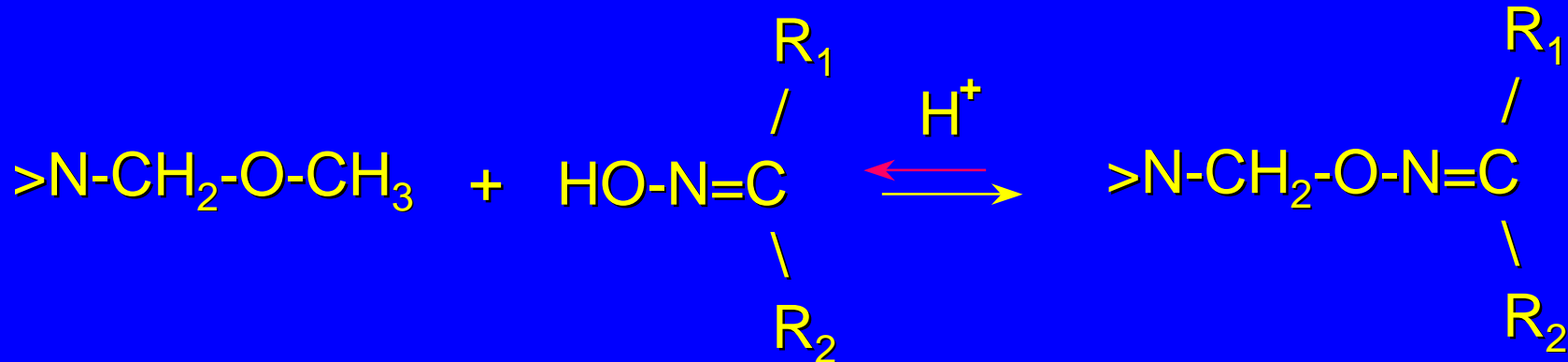
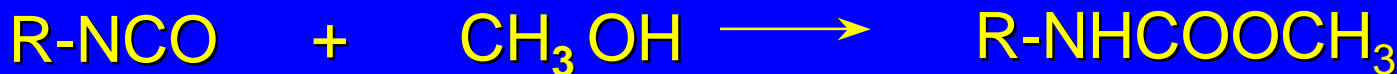
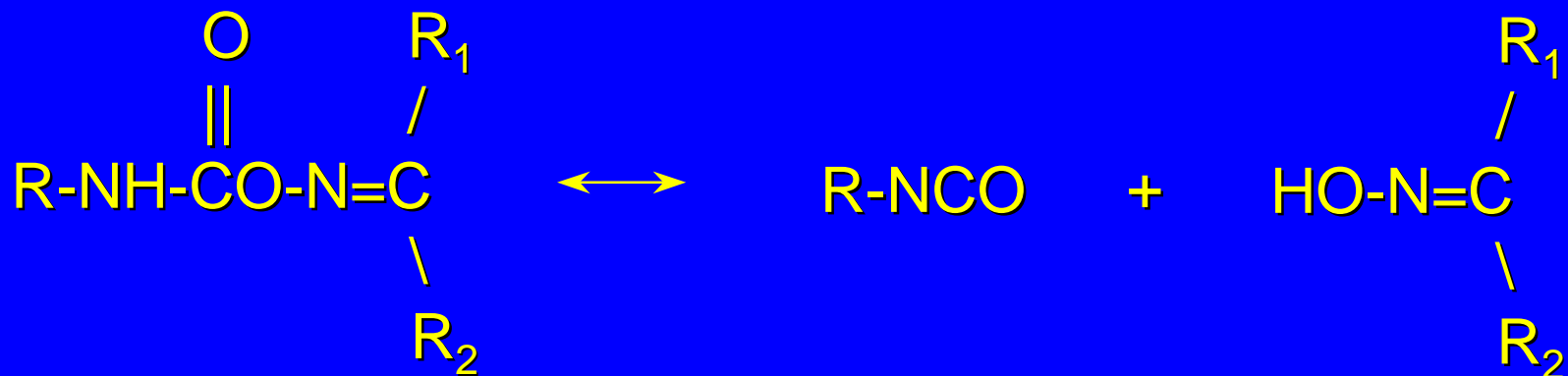
KETOXIME

MALONATE

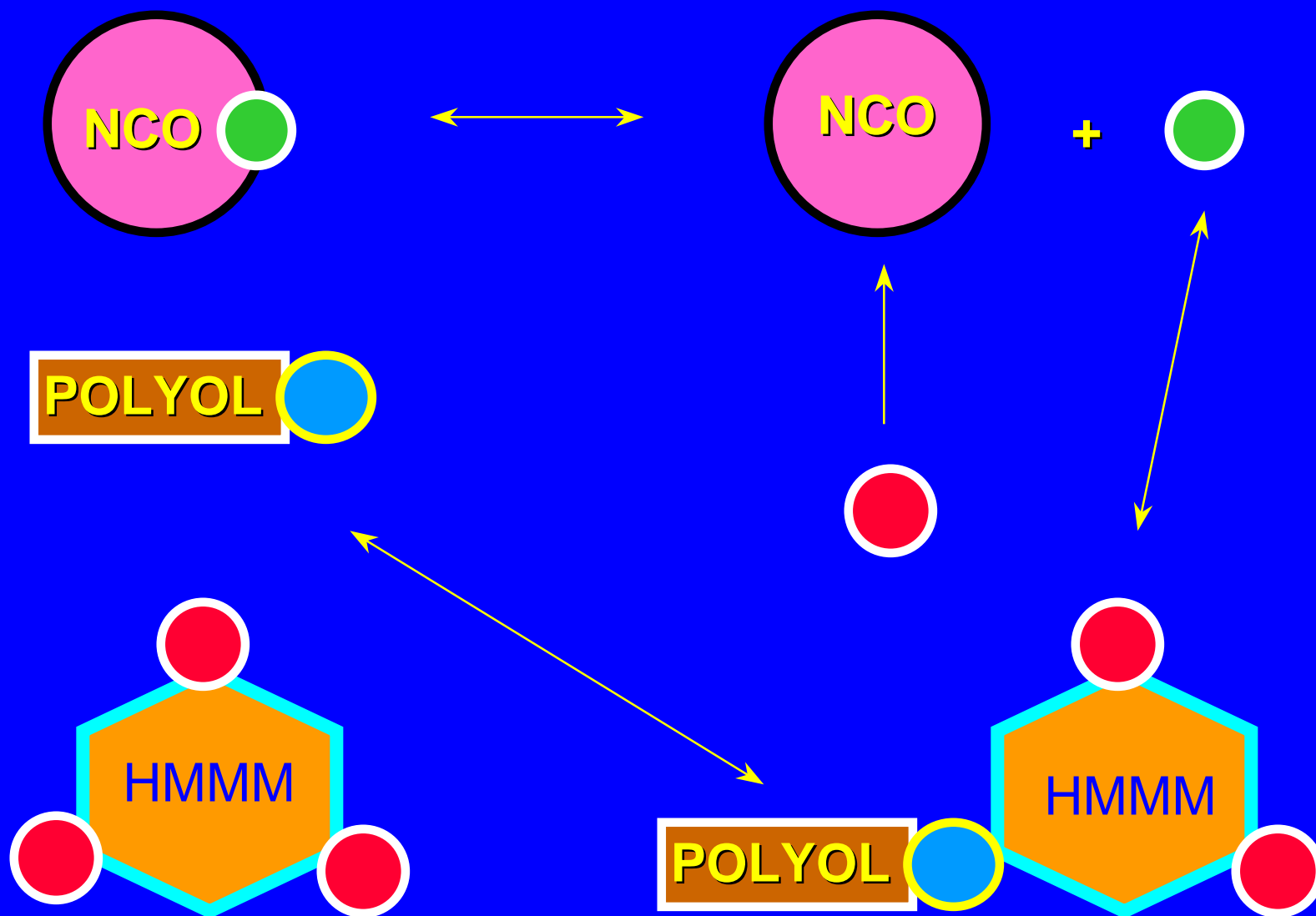
SILOXANE

EPOXY

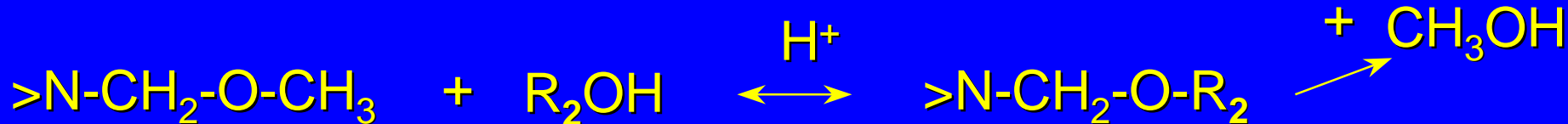
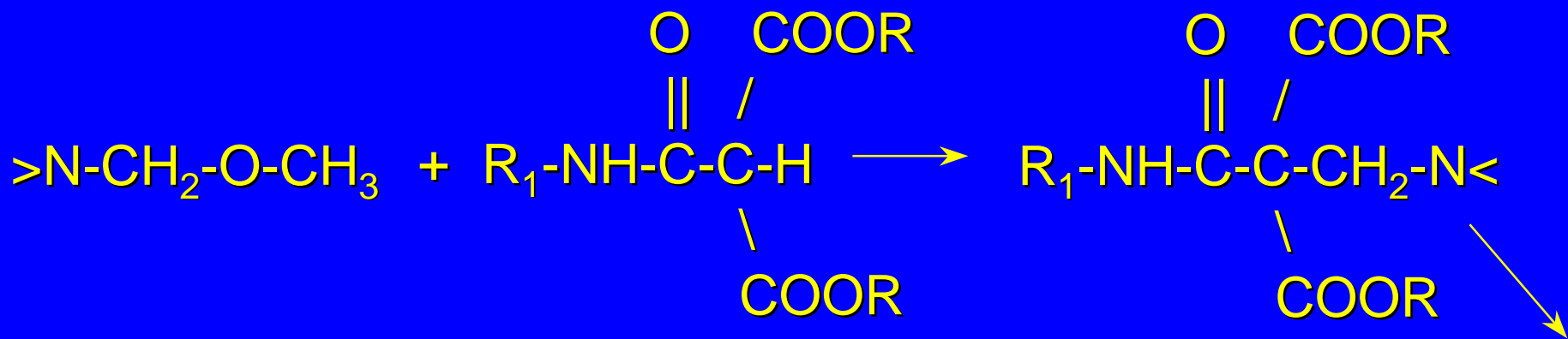
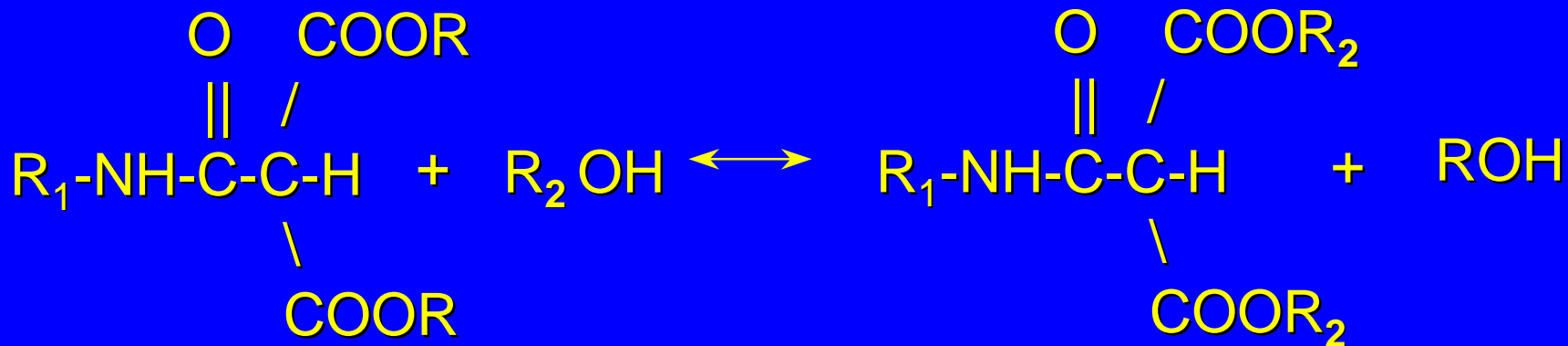
BL-NCO/HMMM/POLYOL



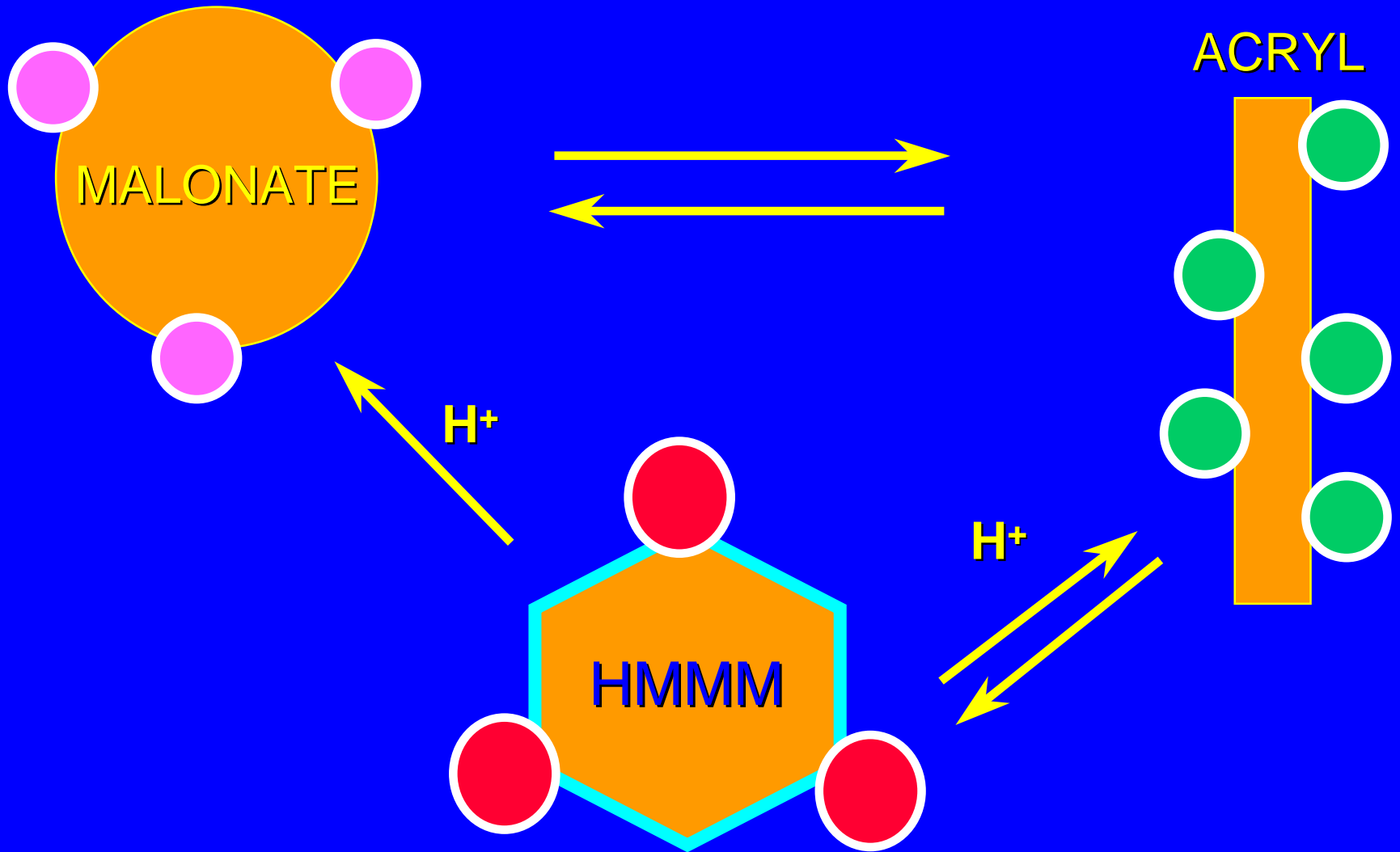
BL-NCO/HMMM/POLYOL



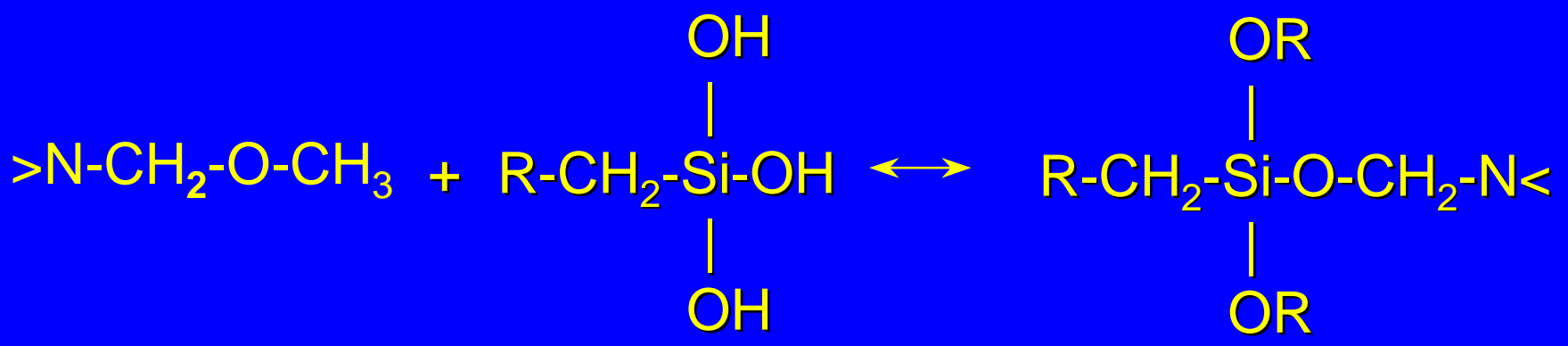
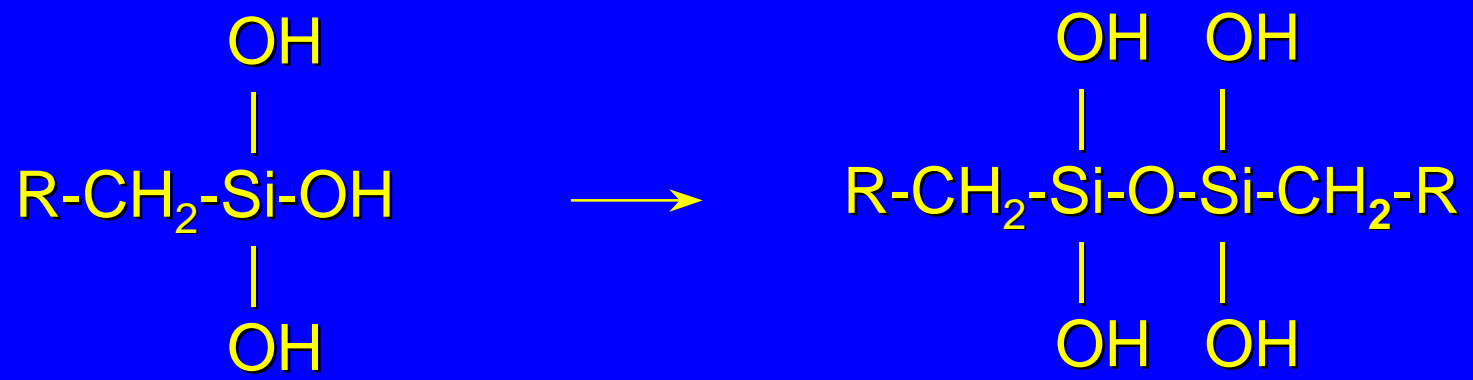
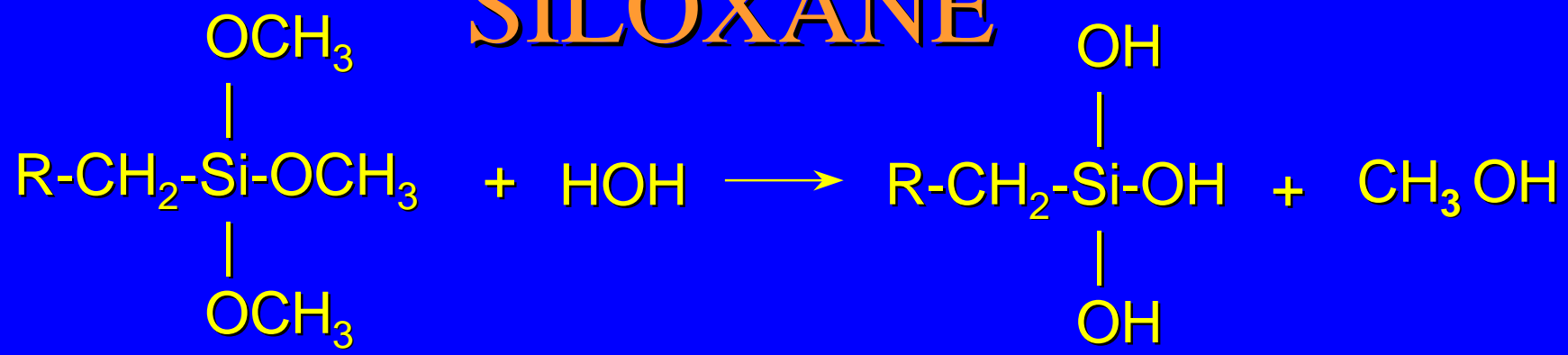
MALONATE BLOCKED NCO



MALONATE BLOCKED NCO



SILOXANE



IMPROVED NETWORKS

MORE STABLE NETWORK

NH CROSSLINKS

CARBAMATE pri, sec

AMIDE

UREA

CH CROSSLINKS

PHENOL

MALONATE BL.

MERCAPTO

NH-CROSSLINKS

STABILITY

pKa

ALKYL-NH-CH₂-(NR)₂

TRIAZINE-NH-CH₂-(NR)₂

-CO-NH-CH₂-(NR)₂

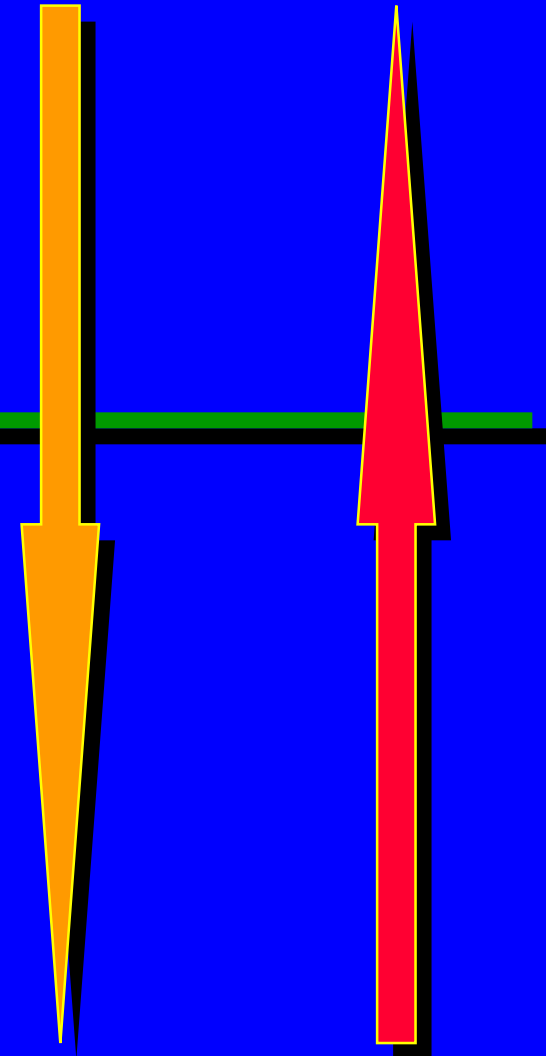
-CO-NH-CH₂-NH-COR

TRIAZINE-NH-CH₂-NH-TRIAZINE

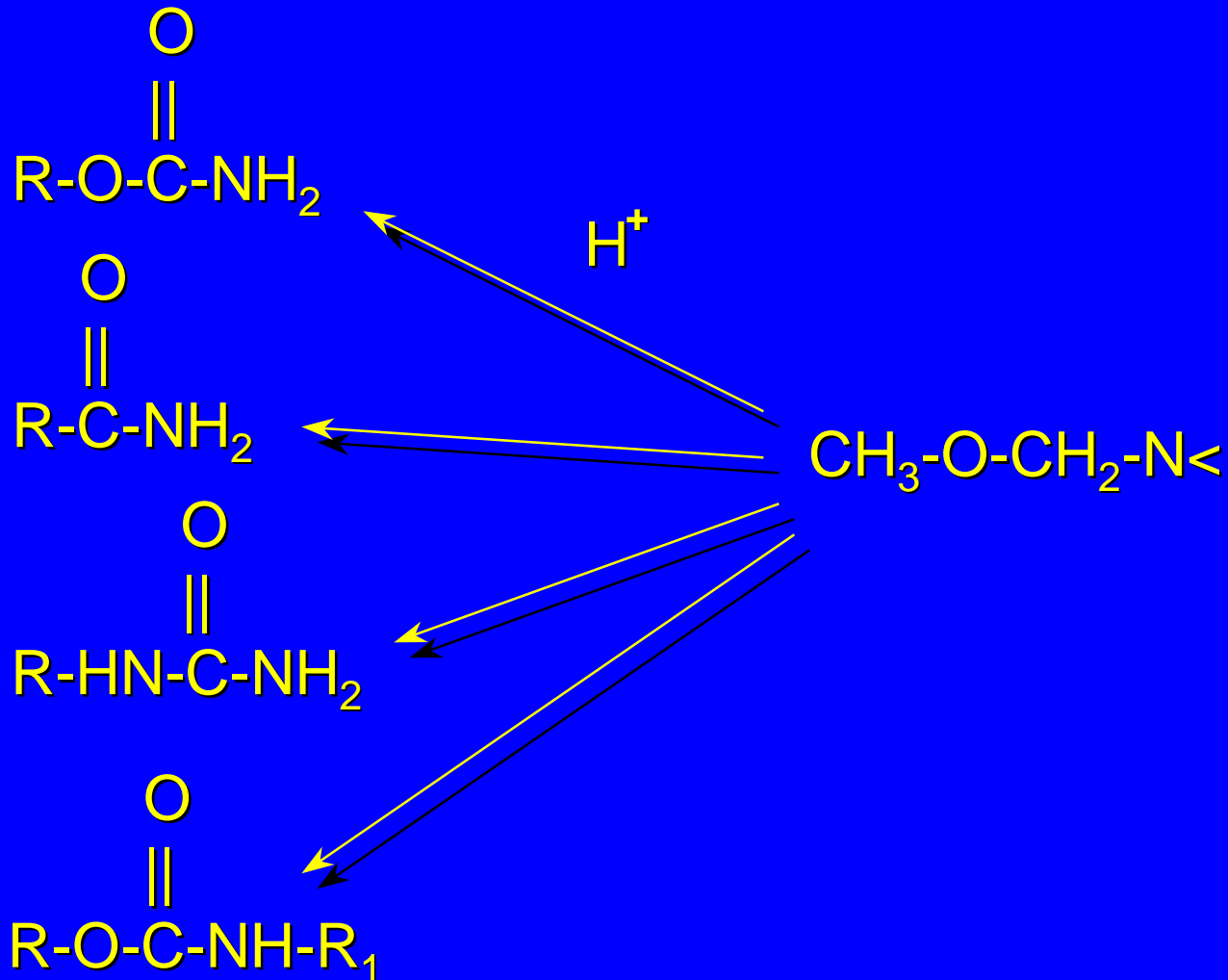
TRIAZINE-NH-CH₂-NHCOOR

TRIAZINE-NH-CH₂-NH-COR

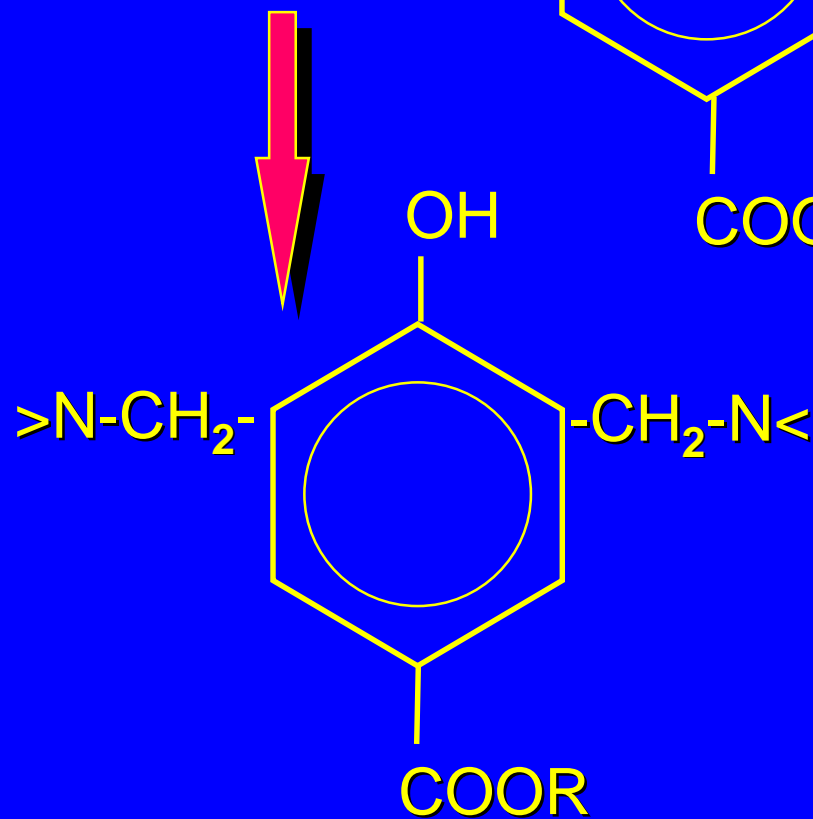
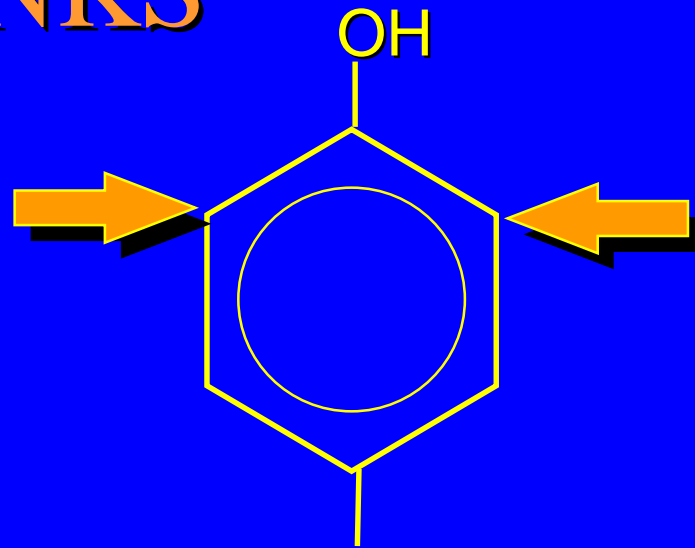
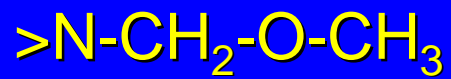
GLYCOLURIL-CH₂-GLYCOLURIL



NH-CROSSLINKS



CH-CROSSLINKS



IMPROVED NETWORKS

HYDROPHOBIC BACKBONE OR HYDROLYTICALLY
STABLE BACKBONES

ESTER FREE BACKBONE

POLYURETHANE WITH HYDROPHOBIC GROUPS

ACRYLIC BACKBONE

HYDROPHOBIC & ESTER FREE BACKBONE

POLYURETHANE BACKBONES

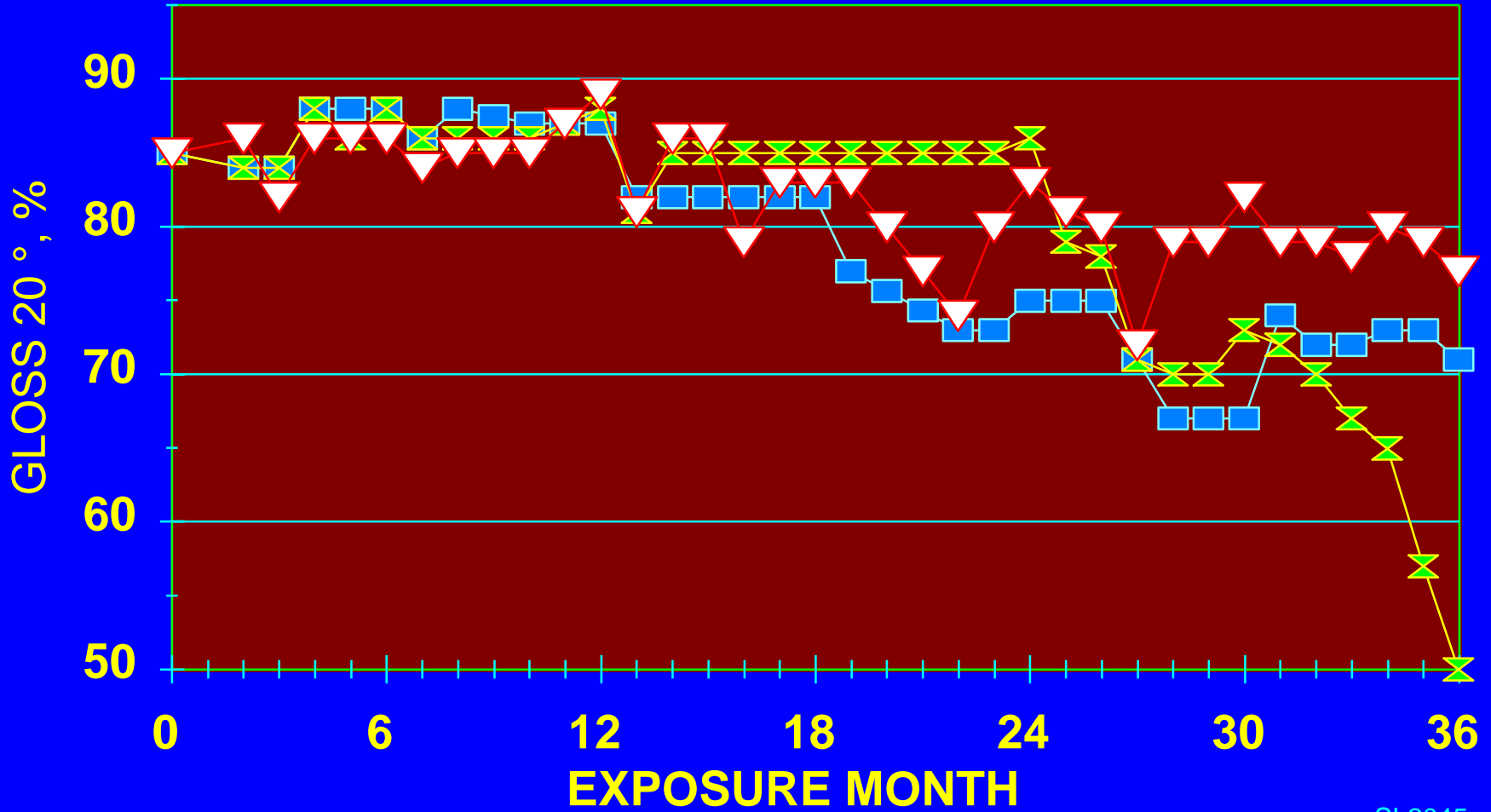
POLYURETHANES WITH HYDROPHOBIC GROUPS

ACRYLIC POLYMERS



POLYURETHANES WITH HYDROPHOBIC GROUPS

PU ACID ETCH/HMMM
FLORIDA, 0°, GLOSS 20°, WASHED



SL2045

■ XM-3305 × COMP. B ▼ MODIF.

IMPROVED NETWORKS

OTHER POTENTIAL APPROACHES

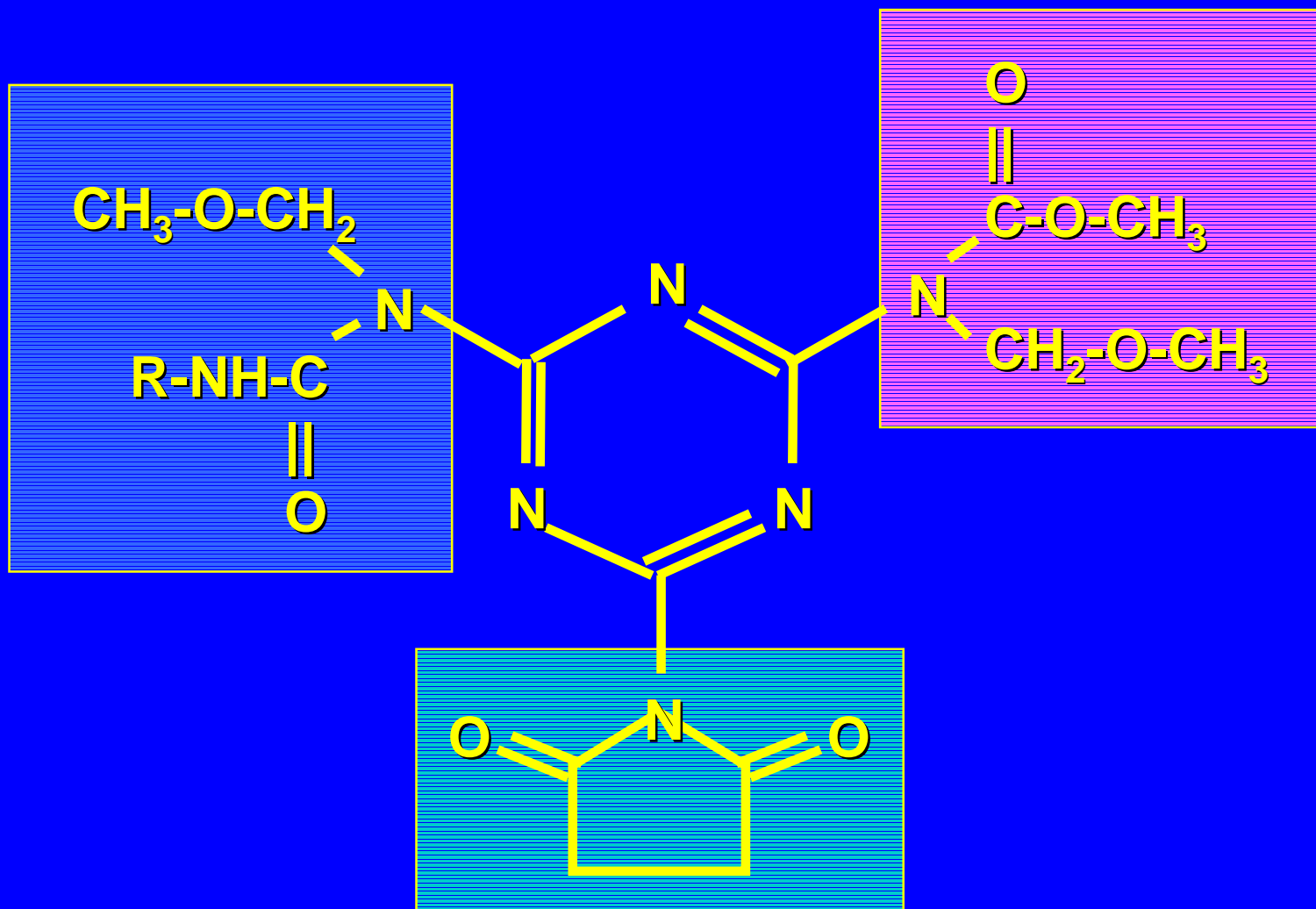
REDUCE SOLUBILITY OF MELAMINE

REDUCED BASICITY OF MELAMINE

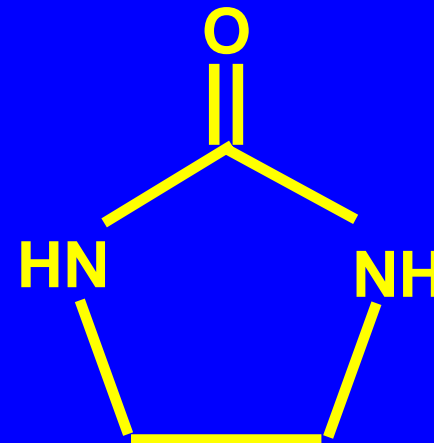
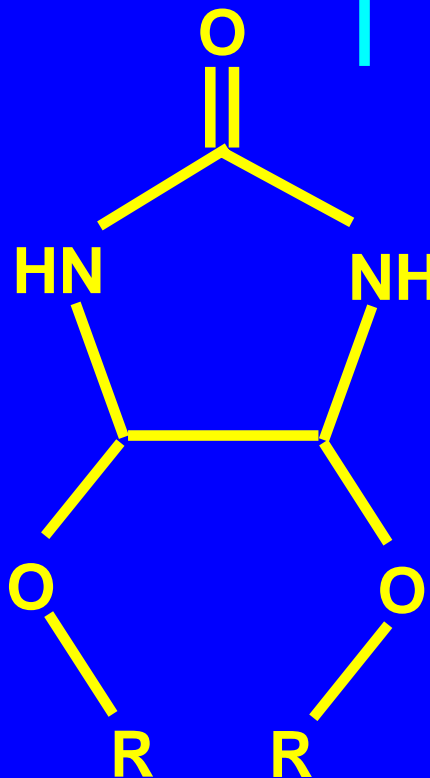
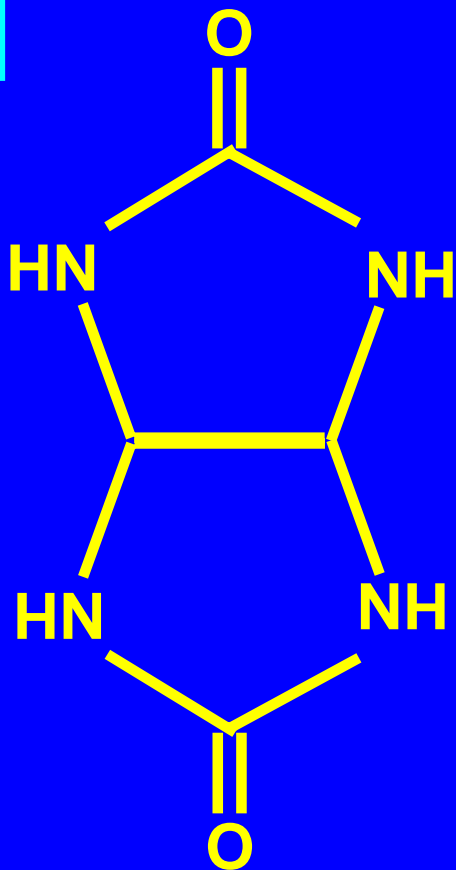
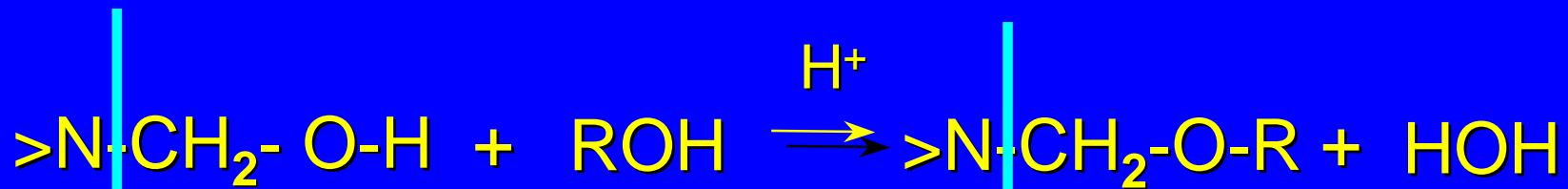
COMBINATION WITH OTHER AMINO RESINS

CHANGE IN HYDROLYSIS EQUILIBRIUM

HMMM REDUCED BASICITY



REDUCED BASICITY



Acknowledgment

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