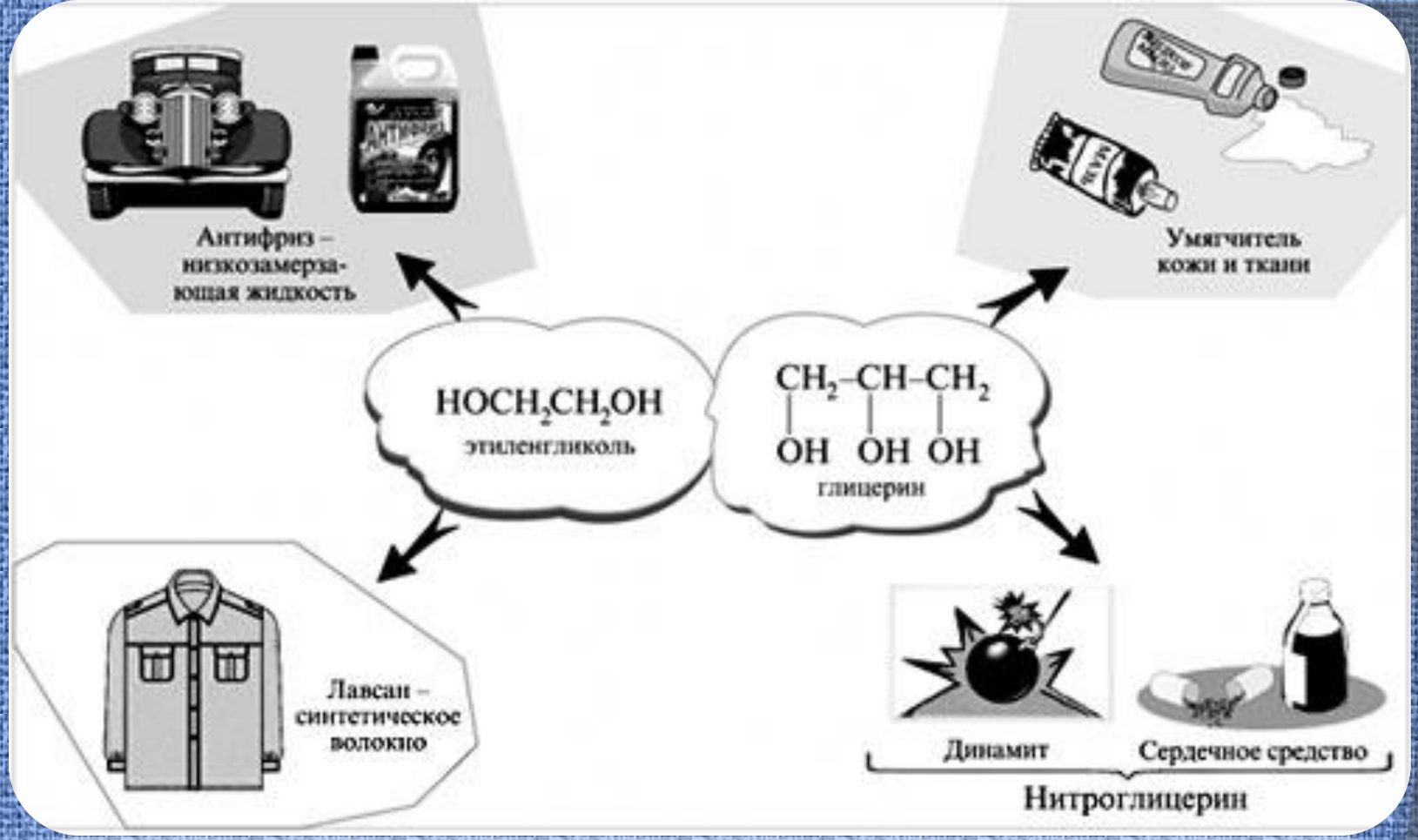
TOPIC : S


SARTORI
ESTATE COLLECTION
2003
AMARONE
ORD RESERVE
KENNEDY MANOR
DINING ROOM & BAR
Cakebread
Cellars
Chardonnay



- ALCOHOLS (alcohols) - a class of organic compounds containing one or more groups-HE, with the hydroxyl group linked to an aliphatic carbon atom (compounds in which the carbon atom in the group WITH-IT is part of the aromatic nucleus, are called phenols)

Classification of alcohols varied and depends on the sign of the structure taken as a basis

- 1. Depending on the number of hydroxyl groups in the molecule, alcohols are divided into:
  a) monatomic (consist of a single hydroxyl IT group), for example, methanol CH3OH, ethanol SON, propane SON
  b) polyatomic (two or more hydroxyl groups), for example, ethylene glycol HO-CH2-CH2-OH, glycerin HO-CH2-CH(Oh)-CH2-OH, pentaerythritol C(SNON)4.

- Compounds in which one carbon atom has two hydroxyl groups, in most cases, unstable and easily converted into aldehydes, replay with water: RCH(OH)2 ® RCH=O + H2O
- Alcohols containing three groups HE has one carbon atom , do not exist.

- 2. The type of carbon atom which is connected with the group HE, alcohols are divided into:
(a) primary, which group is linked to a primary carbon atom. The primary is called the carbon atom (red) is associated with only one carbon atom. Examples of primary alcohols - ethanol CH3-CH2-OH, propane CH3-CH2-CH2-OH.
b) secondary, which group is linked to a secondary carbon atom. The secondary carbon atom (highlighted in blue) is associated simultaneously with two carbon atoms, for example, secondary propel alcohol, secondary butane (Fig. 1).

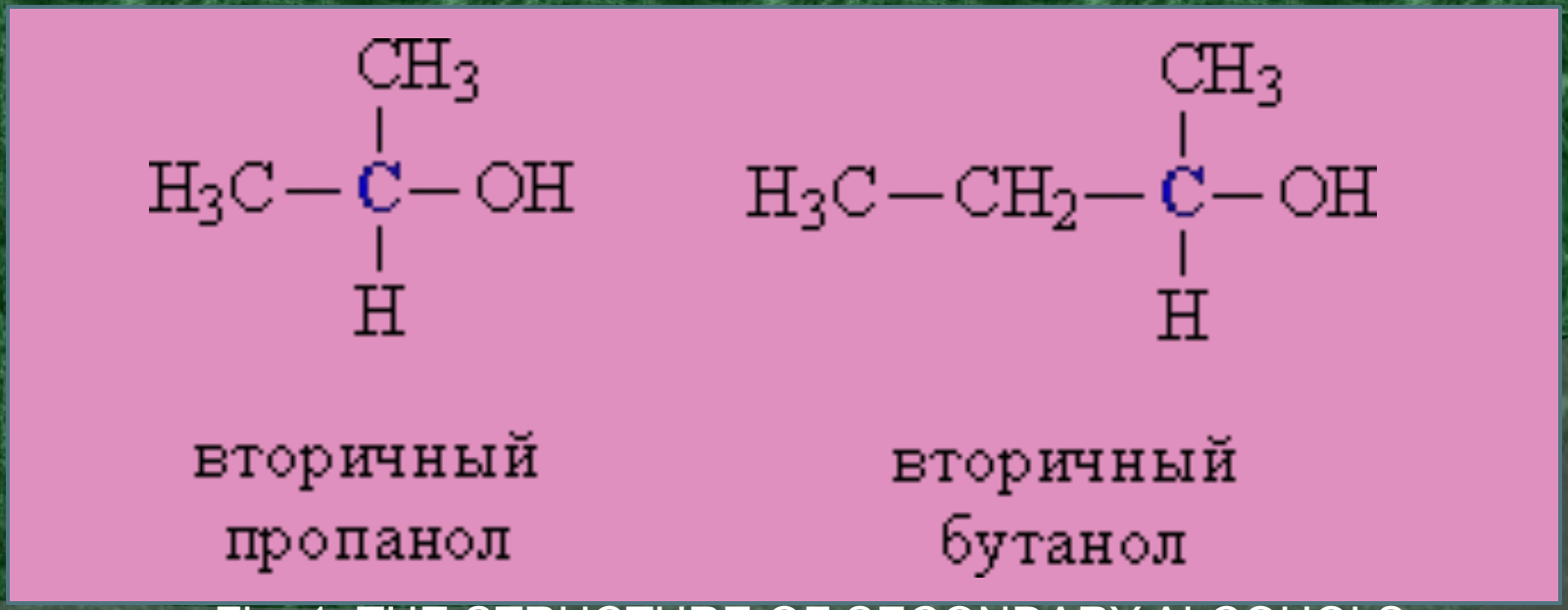


Fig. 1. THE STRUCTURE OF SECONDARY ALCOHOLS

- C) tertiary, which group is linked to tertiary carbon atom. Tertiary carbon atom (highlighted in green) is associated simultaneously with three neighboring carbon atoms, for example, tertiary butane and pentane (Fig. 2).

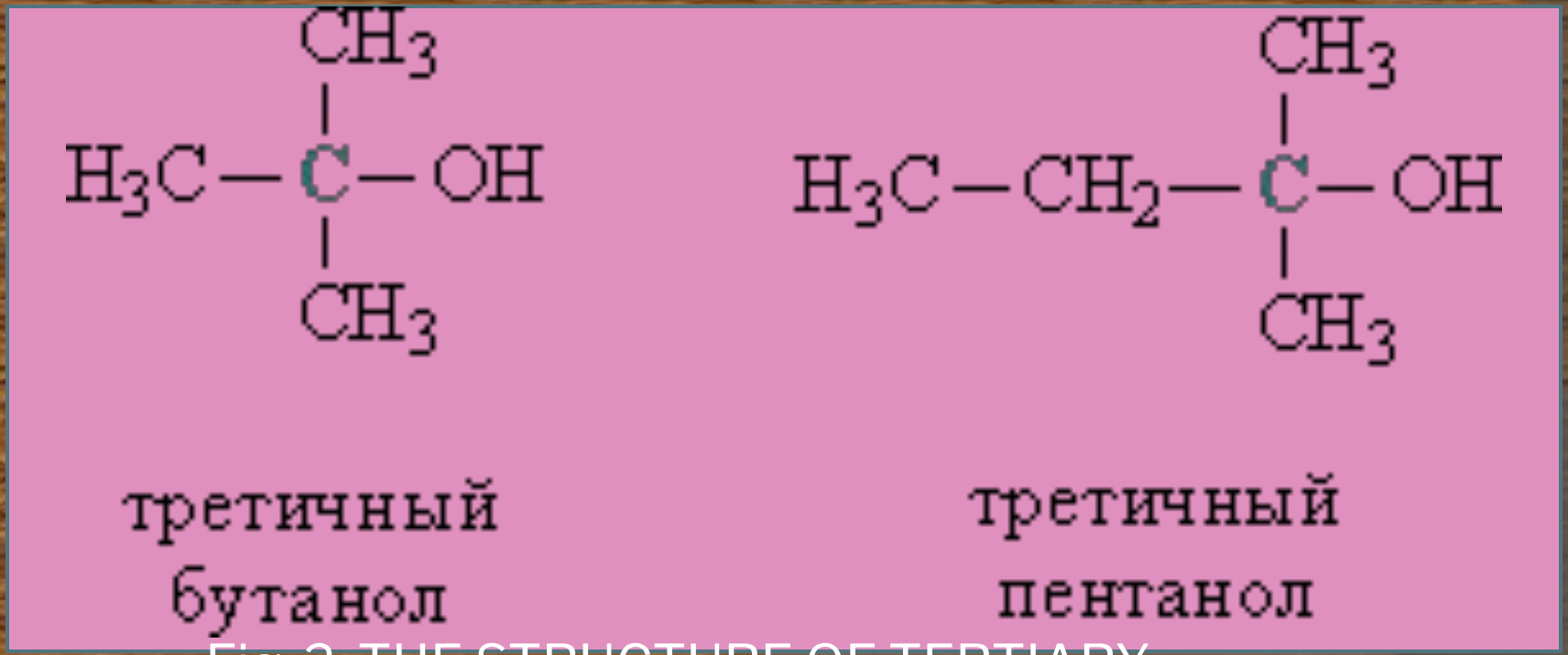


Fig. 2. THE STRUCTURE OF TERTIARY ALCOHOLS

3. According to the structure of the organic groups connected HE is in the group, the alcohols are divided into marginal (methanol, ethanol, propane), unsaturated, for example, ally alcohol CH2=CH-CH2 -, HE, aromatic (e.g., benzyl alcohol SNNAN) containing the group R is an aromatic group.

Unsaturated alcohols, for whom HE is the group adjacent to the double bond, i.e. linked to the carbon atom participating simultaneously in the formation of double bond (e.g., vinyl alcohol CH2=CH-OH), a highly unstable and immediately are isomerizes (see ISOMERIZATION) to aldehydes or ketenes:CH2=CH–OH ® CH3–CH=O

Nomenclature of alcohols

- For common alcohols having a simple structure, simplified nomenclature: the name of the organic group is converted to an adjective (with the help of the suffix and the end of the "new" and add the word "alcohol":

CH_3OH	methyl alcohol
C_2H_5OH	ethyl alcohol
$(H_3C)_2CHOH$	isopropyl alcohol
C_4H_9OH	butyl alcohol

- In the case where the structure of the organic group is more complex, use all organic chemistry rules. Names, made in such rules, called systematic. In accordance with these rules, the hydrocarbon chain is numbered from the end nearer HE is group. Then use this numbering to indicate the position of different substituent's in the main chain, at the end of the title add the suffix "old" and a number, indicating the position of Oh groups (Fig. 4):

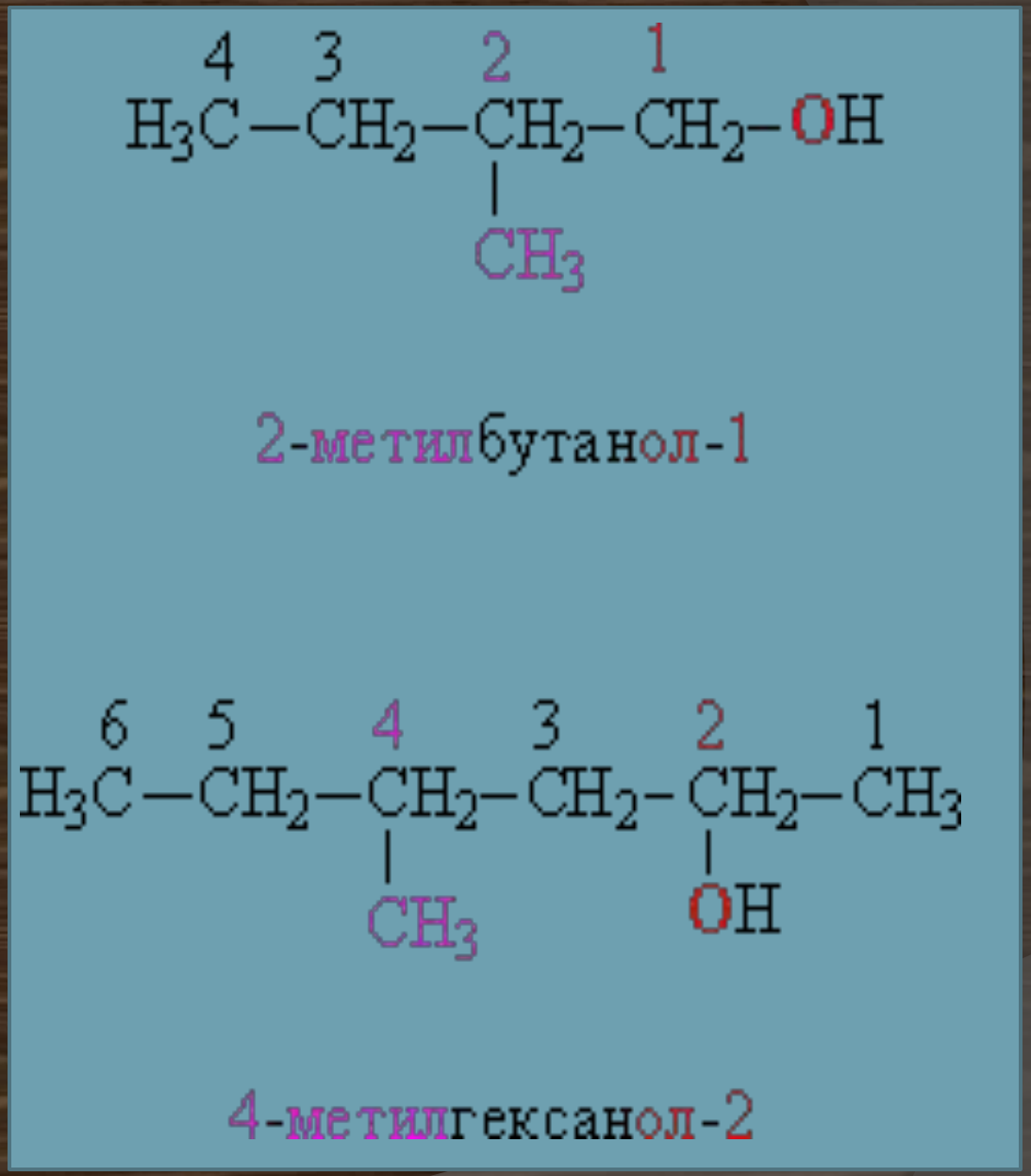


Fig. 4. SYSTEMATIC NAMES OF ALCOHOLS

- Functional (HE) and substitute (CH3) group, and the corresponding digital indices of selected distinct colors.

  Systematic names of the simplest alcohols are by the same rules: methanol, ethanol, butane. For some spirits remained trivial (simplified) names, historically: property alcohol NCS-CH2 -, HE, glycerin HO-CH2-CH(Oh)-CH2-OH, pentaerythritol C(SNO)4, finitely alcohol SN-CH2-CH2-OH.

Physical properties of alcohols

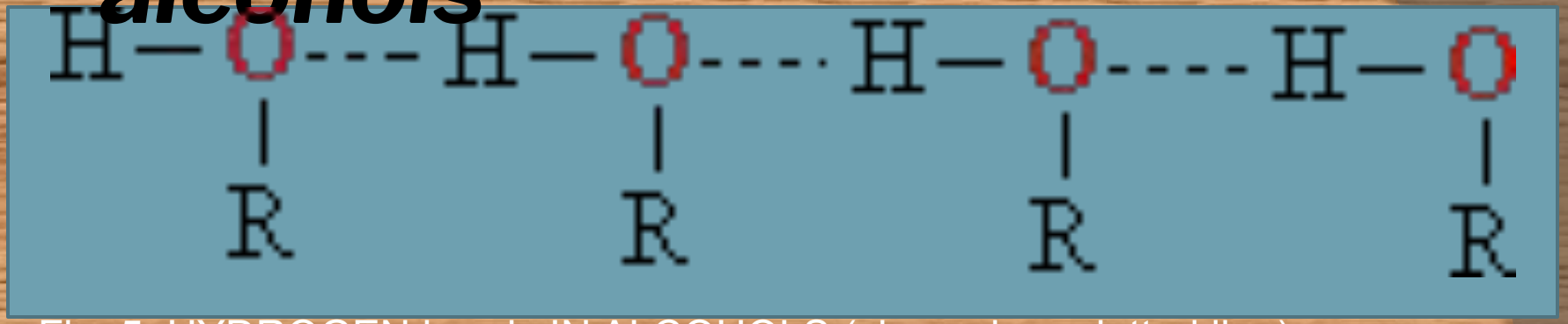


Fig. 5. HYDROGEN bonds IN ALCOHOLS (shown by a dotted line)

- Alcohols are soluble in most organic solvents, the first three of the simplest representative - methanol, ethanol and propane, and tertiary butane (NS)SON - mixed with water in any ratio. When the number of atoms in the organic group is beginning to affect hydrophobic (water-repellent) effect, the solubility in water becomes limited, and in the case of R containing more than 9 carbon atoms, practically disappears.
  Due to the presence of Oh groups between molecules of alcohols hydrogen bonds occur.
  The result of all alcohols higher boiling point than the corresponding hydrocarbons, for example, Kip. ethanol +78° C, and T. Kip. ethane -88,63° C; b. p .. butane and butane respectively +117,4° C and -0.5° C.

Chemical properties of alcohols

- Alcohols differ in various transformations. Reactions of alcohols have some common patterns: reactivity of primary Monohydric alcohols are higher than the secondary, in turn, secondary alcohols are chemically more active than tertiary. For dihydric alcohols, in the case when the Oh groups are located at adjacent carbon atoms, there is increased (in comparison with Monohydric alcohols) reactivity due to the mutual influence of these groups. For alcohols the possible reactions taking place with a gap as C-O and O-H - bonds.
When interacting with mineral or organic acids alcohols to form esters are compounds containing the fragment R-O-A (a - acid residue). The formation of esters occurs by the interaction of alcohols with anhydrides and chlorides of carboxylic acids (Fig. 6).

Obtaining alcohols.

- Some of the reactions shown above (Fig. 6,9,10) reversible and when conditions change can proceed in the opposite direction, causing them to produce alcohol, for example by the hydrolysis of esters and kalogeropoulou (Fig.11A and B, respectively), as well as the hydration of alkenes - attach water (Fig.11B).

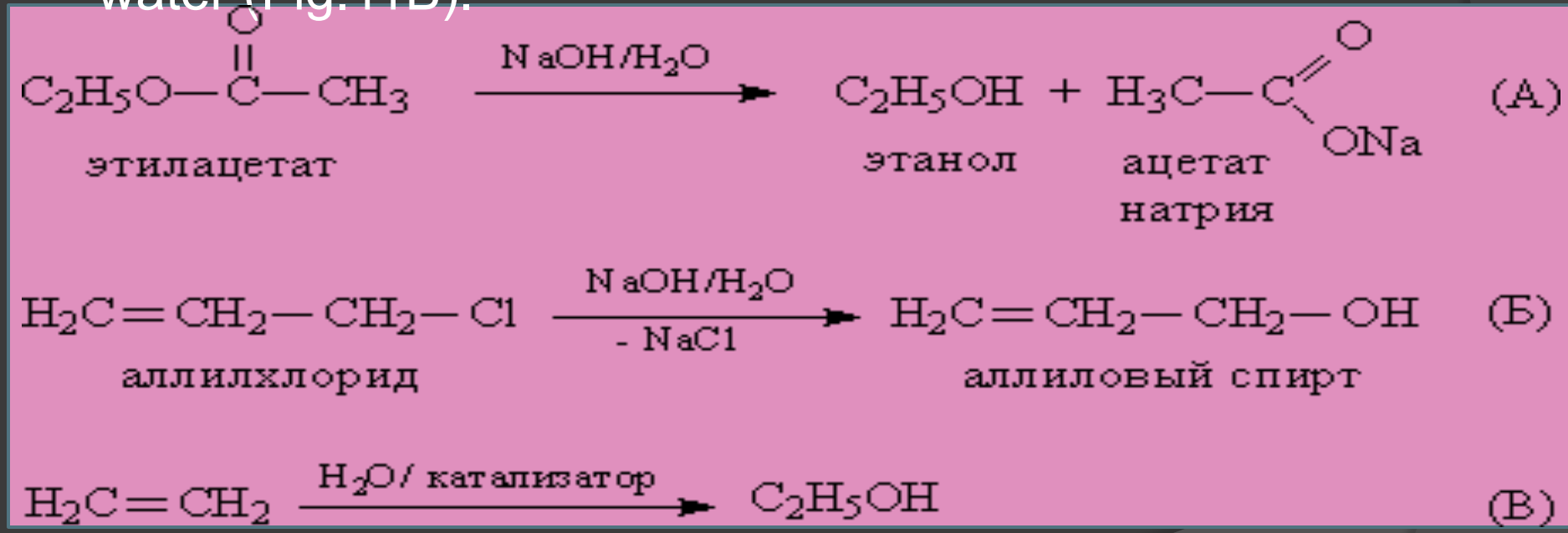


Fig. 11. OBTAINING ALCOHOLS BY HYDROLYSIS AND HYDRATION OF ORGANIC COMPOUNDS

Reaction of alkenes hydrolysis (Fig. 11, scheme C) is the basis of industrial production of lower alcohols containing up to 4 atoms of C.

- Ethanol is formed and the so-called alcoholic fermentation of sugars, such as glucose SNO. The process proceeds in the presence of yeast and leads to the formation of ethanol and CO2:

  SNO ® NON + SO

  Fermentation can be obtained not more than 15% aqueous solution of alcohol, because with a higher concentration of alcohol yeast die. Solutions of higher alcohol concentration obtained by distillation.

The use of alcohols.

- The ability of alcohols to participate in a variety of chemical reactions can be used to obtain all sorts of organic compounds: aldehydes, ketenes, carboxylic acids, simple and complex esters, used as organic solvents in the manufacture of resins, dyes and pharmaceuticals

- Methanol CH3OH is used as a solvent and in the manufacture of formaldehyde used to produce phenol-formaldehyde resins, recently seen as a promising methanol motor fuel. Large amounts of methanol used in the extraction and transport of natural gas. Methanol is the most toxic compound among all the alcohol lethal dose the ingestion of 100 ml.

- Ethanol SNO - source connection for receiving of acetaldehyde, acetic acid, and also for the production of esters of carboxylic acids used as solvents. In addition, ethanol is the main component of all alcoholic beverages, it is widely used in medicine as a disinfectant.

- Butane is used as solvent for fats and resins, in addition, it serves as raw material for production of aromatic substances (butyl acetate, butyl aniline, etc.). In shampoos it is used as a component to increase the transparency of the solutions.

  Benzyl alcohol SN-CH2-OH in the free state (in the form of esters) found in the essential oils of Jasmine and hyacinth. It has antiseptic (disinfectant) properties in cosmetics it is used as a preservative in creams, lotions, dental elixirs, and perfume - like sweet substance.

- Finitely alcohol SN-CH2-CH2-OH has the smell of a rose, found in rose oil, it is used in perfumery.

  Ethylene glycol HOCH2-CH2OH used in the production of plastics and antifreeze (an additive that reduces the freezing point of aqueous solutions), in addition, in the manufacture of textile and printing inks.

  Diethylene glycol HOCH2-CH2OCH2-CH2OH used to fill the hydraulic brake devices, as well as in the textile industry for finishing and dyeing.

- Glycerin HOCH2-CH(OH)-CH2OH used to produce polyester glyptic resins, in addition, it is a component of many cosmetic preparations. Nitroglycerin (Fig. 6), the major component of dynamite used in mining and railway construction as explosives.

  Pentaerythritol (HOCH2)4C used to produce polyesters (pentaftalevye resin) as a curing agent for synthetic resins, as a plasticizer of polyvinyl chloride, and in the manufacture of explosives tetranitromethane.

  Polyhydric alcohols xylitol NON-(SNON)3-SNON and orbital NON- (SNON)4-SNON have a sweet taste, they are used instead of sugar in confectionery products for diabetics and people suffering from obesity. Orbital contained in the berries of mountain ash and cherry. Glycerin HOCH2-CH(OH)-CH2OH used to produce polyester glyptic resins, in addition, it is a component of many cosmetic preparations. Nitroglycerin (Fig. 6), the major component of dynamite used in mining and railway construction as explosives.

THANK YOU FOR YOUR ATTENTION!