CHAIN REACTIONS AND MECHANISMS OF THESE REACTIONS

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Annotation . This quickly statement done from the data with a chain of reactions main purpose and wide spread out reactions that understanding possible _ Chained of reactions types - in gases going all burning reactions , cracking processes , double and _ kept a triangle of hydrocarbons polymerization processes , explosion reactions and another processes enters _ Atom core from energy also chained in use processes very big importance _

Work purpose-chained of reactions to go products and reaction mechanism from learning consists of

Key words: Chain reactions, heterolytic, homolytic, radicals, hydrogen , oxidation, nucleus, chlorination, sulfochlorination, sulfoxidation, nitration, oxidation .

INTRODUCTION

Covalent connect homolytic interruption as a result chemical in terms of to the reaction get in ability strong was _ particles harvest will be It's powerful reaction ability of particles nature defines and their to live the time very short that provides . They are one unpaired to the electron have are , atoms or molecules be free _ _ called radicals .[1] Such an atom or particles odd to the electron have will be and always this odd electrons to mate movement they do [1-5]. That's it separately to emphasize should be covalent garden heterolytic (ionic) and Homolltic (radical) way interruption can _

Connect ionic (heterolytic) way interruption the garden harvest did electron of the couple separately in the atom stay with goes _ Electronic to the pair have An atom that is a negative ion (anion) and without electronics the rest A positive ion (cation) is formed does [2,3].

$$A|:B \rightarrow A^{+} + :B^{-}$$

Connect in the homolytic (radical) mechanism interruption the garden produced _ electron of the couple between two atoms equal to distribution and free radicals harvest to be with goes : [6]

$$A:B \rightarrow A^{\cdot} + B^{\cdot}$$

From sources that's it to know kumkinki in total chemical reactions their to go mechanism looking two to the group divided into :
1. Molecular reactions-reagents to the reaction introductory substances asset complex

(interval substance) product to do through to products becomes _ 2. Reagents initial on time directly does not affect , that is to the reaction does not enter . Reaction Beginning for the most first of all asset called the center substance harvest to be need (chain mechanism with going complicated reactions) [7]

EXPERIMENTAL PART

Not full in valency asset particles (free atom, radical and excited molecules) in the presence consecutively one different stages with going reactions with a chain are called reactions .

Har how with a chain the reaction three from the stage to look at as consisting of possible ;

- of the chain to the body arrival (or " beginning reaction ");
- reactions of the chain continue reach and branching ;
- of the chain interruption ;

Chained reactions one how many properties have _

- extremely little in quantity catalyst to the reaction sharp effect shows ;
- with a chain reaction speed dish to the diameter depends will be (container diameter when it gets smaller reaction speed decreases);
- reaction to the environment hard the body when entered reaction slowing down goes ;
- with a chain reactions known time after starts :

Chemical reactions at the time , to the circumstances looking at the garden interruption symmetrical way done increases . Garden _ such structure above as we noted homolytic or radical called interruption . _

$$Cl{:}\,Cl \rightarrow Cl\cdot + Cl\cdot$$

Table 1

Free radicals harvest to do methods .

No	Free radicals harvest to be types ;	Reaction mechanism ;	Reaction for Demand to be done energy quantity ;
1	Thermal methods with free radicals harvest to do	$A{:}\,A \rightarrow (t°)A\cdot + A\cdot$	52 kcal / mole equal to the garden cut off for heating at 50 -150 C° enough _
2	To the material light light effect having reached free radicals harvest make (Photolysis).	$A{:}\,A \rightarrow (hv)A\cdot + A\cdot$	286 nm wavelength to the length have was ultraviolet light 100 kcal / mol quantum to energy have _

3	Radiations in effect free of radicals harvest to be	$A: A \rightarrow (\gamma)A\cdot + A\cdot$	g is the energy of the rays high that it was for another particles from within choose received _
4	Substances mechanic grind with free radicals harvest to do	Substances very small by doing grind on time separate energy out gardens homolytic way is disconnected .	-
5	Oxidation - reduction reactions as a result radicals harvest to do	a) Returner in effect radical harvest to be : b). Oxidizing . electrolysis on time radical harvest to be	-

Radical exchange reactions . Inorganic in chemistry important radical exchange reactions burning reactions (of hydrogen oxidation), of an atom core from energy in use too with a chain processes very big important has _

of hydrogen oxidation . In this with a chain of the reaction H atom reaction with dependent ;

$H: H \rightarrow H\cdot + H\cdot$ ·the beginning of the chain

$$O: O \rightarrow O\cdot + O\cdot$$

$$H\cdot + O_2 \rightarrow OH + O\cdot$$

after reaction fast starts ;

$$O\cdot + H_2 \rightarrow OH + H\cdot$$

of hydrogen oxidation bottom to the limit near in pressure is used

$$OH + H_2 \rightarrow H_2O + H\cdot$$

$H\cdot + O_2 \rightarrow OH + O\cdot$ ·continuation of the chain

$$O\cdot + H_2 \rightarrow OH + H\cdot$$

of the chain Beginning in reactions happen guess it will be will be done ;

$H_2 + O_2 = 2OH$

Most less (especially in the mixture hydrogen a lot if) reaction speed is considered

$H\cdot + O_2 \rightarrow OH + O\cdot$ ·- 17 kcal.

Too much hydrogen with from the stoichiometric starting from of reaction development the most high of H atom per concentration achieves _

From this except of hydrogen oxidation this with a chain the reaction free radicals by done increases . of the chain interruption ; [3]

$$H: H \rightarrow H\cdot + H\cdot$$

$O:O \rightarrow O\cdot + O\cdot$ chain break

$$O\cdot + H\cdot \rightarrow H_2O$$

THE RESULTS OF THE WORK AND THEIR DISCUSSION

Nuclei of division chain reaction _ Heavy $^{233}_{92}U$, $^{235}_{92}U$, $^{238}_{92}U$, $^{239}_{94}Pu$ nuclei division processes from the view except again one core reaction - neutrons under the influence of atom of another element harvest make : $^{9}_{4}Be+n \rightarrow 2\,^{4}_{2}He+2n$; this on the ground big in quantity energy separated and of neutrons increase happen will be Beryllium-9 fission reaction tertium work release problem point of view in terms of important have though with a chain process done increase possible it's not . It is known that the core energy relatively promising is $^{2}_{1}H+\,^{3}1H \rightarrow\,^{4}_{2}He+n$ reaction important important have _ In this reaction participation doer of deuterium ($^{2}_{1}H$). natural in hydrogen concentration is 0.015% organize doing it _ the sea water again work through separate can _ Tertium in nature quantity very less is , it is stable not (b — radioactivity , half decay period 12.4 years), but their lithium-6 ni neutrons using using the beat get possible : $^{6}_{3}Li+n \rightarrow\,^{3}_{1}H+\,^{4}_{2}He$. Chained reaction reminiscent of the ring tretium work release - technological cycle as above will be [4] Radical exchange reactions. Organic in chemistry important radical exchange reactions chlorination , bromination , sulfochlorination , sulfoxidation , oxidation , nitration , nitrosation , chlorocarbonylation and others example be takes _

Chlorination . Chlorination to the reaction alkane chlorination reaction mechanism seeing we go out Methane chlorine effect chlorination upon delivery reaction result a mixture of CH_3CI, CH_2CI_2, $CHCI_3$, CCI_4 in acid harvest paint _ Rayection initial chlorine in the phase molecule light under the influence of homolytic respectively chlorine decomposes into the radical :

$$Cl:Cl \rightarrow (\text{hv})Cl\cdot + Cl\cdot$$
$$Cl\cdot + R:H \rightarrow R\cdot + HCl$$
$$R\cdot + Cl:Cl \rightarrow RCl + Cl\cdot$$

For example ; of CH_4 chlorination seeing we go out ;

$Cl:Cl \rightarrow (\text{hv})Cl\cdot + Cl\cdot$

$$CH_4 + Cl\cdot \rightarrow CH_3\cdot + HCl$$
$$CH_3\cdot + Cl_2 \rightarrow CH_3Cl + Cl\cdot$$
$$CH_3Cl + Cl\cdot \rightarrow$$

Sulfochlorination : Chlorination reaction sulfuryl chloride using

benzoyl peroxide in the presence of take if only _ obtaining monochloroalkanes possible [1]. Washing tools (surface active compounds) in obtaining important important have has been again one reaction - sulfochlorination is also radical-chain . in the mechanism goes _ UV light to alkanes effect under chlorine and sulfur (IV) oxide mixture effect bringing alkyl sulfochlorides synthesis will be [5]

$$Cl:Cl \rightarrow (hv) Cl\cdot + Cl\cdot$$

$$Cl\cdot + R:H \rightarrow R\cdot + HCl$$

$$R\cdot + SO_2 \rightarrow R - SO_2$$

$$R - SO_2 + Cl\cdot \rightarrow R - SO_2 - Cl$$[1].

For example ; of propane sulfochlorination seeing we go out ; [5]

CH3-CHZ-CH3 S0;/ 3 / hI » . CH3-CH-CH3 * CH3-CH 2-CH 2S 0 2C 1[105-BET]

Sulfoxidation :

$$R:H + O_2 \rightarrow R\cdot + H_2O_2$$

$$R\cdot + SO_2 \rightarrow R - SO_2$$

$$R - SO_2 + O_2 \rightarrow R - SO_2 - O - O$$

$$R - SO_2 - O - O + R - H \rightarrow R - SO_2OOH + R\cdot$$

$$R - SO_2OOH + R - H \rightarrow R - OH + RSO_2OH$$

Oxidation :

$$R - H + O_2 \rightarrow R - O - O - H$$

$$R - O - O - H \rightarrow RO\cdot + OH\cdot$$

$$RO\cdot + R - H \rightarrow R - OH + R\cdot$$

$$R\cdot + OH\cdot \rightarrow R - OH$$

Nitration :

$$HO - NO_2 \rightarrow OH\cdot + NO_2\cdot$$

$$OH\cdot + R - H \rightarrow R\cdot + HOH$$

$$R\cdot + NO_2\cdot \rightarrow R - NO_2$$

Do n't react to go for radicals harvest to be conditions creation need _

CONCLUSIONS

1. In conclusion in other words , seeing passed with a chain reaction types - from specific examples abstract " chain to the concept of "reaction " . if studied , it is demonstrative study manual if created - significant level efficient will be

2. Current review passed with a chain reactions computer technologies used without chain reactions modeling improvement , generalized the concept more formation need

REFERENCES;

1. Polytechnic dictionary. M.: Nauka, 1976.S. 553.
2. IR Askarov , MX Tokhtaboyev , K. Gafurov Chemistry 8th grade (textbook). Yangyol polygraph service publisher . Tashkent 2014 . _
3. P. Khabibulayev , A. Boydadayev , A. Bakhromov , M. Yuldasheva Physics 9th grade (textbook). G'. Ghulam in the name of printing press publisher house _ Tashkent 2014 _
4. Friedrich GH Kinetics of Homogeneous Multistep Reactions. Elsevier, 2001. - p . 426.
5. Emanuel N.M., Knorre D.G. Course chemical kinetics. - M.: Vysshaya shkola, 1984. - 463 p.
6. Denisov E.T. Kinetics homogeneous chemical reaction. - M.: Vysshaya shkola, 1988. – 391 p.
7 . Semenov N.N. Ts