

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 _

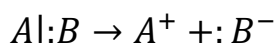
Work purpose-chained of reactions to go products and reaction mechanism from learning consists of

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

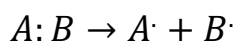
INTRODUCTION

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].



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]



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 . _

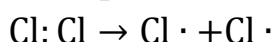


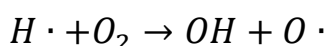
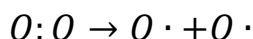
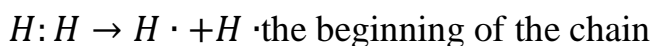
Table 1

Free radicals harvest to do methods .

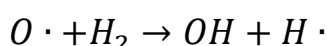
No	Free radicals harvest to be types ;	Reaction mechanism ;	Reaction for Demand to be done energy quantity ;
1	Thermal methods with free radicals harvest to do	$A:A \rightarrow (t^\circ)A \cdot + A \cdot$	52 kcal / mole equal to the garden cut off for heating at 50 -150 C° enough _
2	To the material 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	-

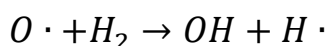
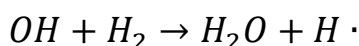
Radical exchange reactions . Inorganic in chemistry important radical exchange reactions burning reactions (of hydrogen oxidation), of an atom core from energy in use too with a chain processes very big important has _ of hydrogen oxidation . In this with a chain of the reaction H atom reaction with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



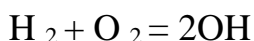
after reaction fast starts ;



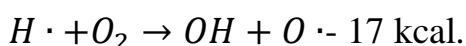
of hydrogen oxidation bottom to the limit near in pressure is used



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

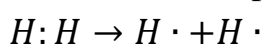


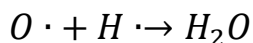
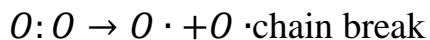
Most less (especially in the mixture hydrogen a lot if) reaction speed is considered



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]

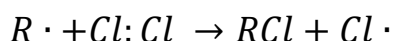
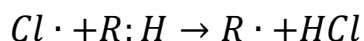
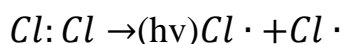




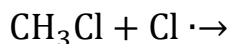
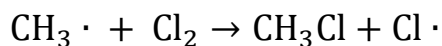
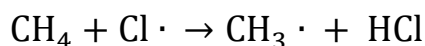
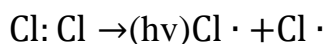
THE RESULTS OF THE WORK AND THEIR DISCUSSION

Nuclei of division chain reaction – Heavy $^{233}_{92}\text{U}$, $^{235}_{92}\text{U}$, $^{238}_{92}\text{U}$, $^{239}_{94}\text{Pu}$ nuclei division processes from the view except again one core reaction - neutrons under the influence of atom of another element harvest make : $^9_4\text{Be}+n \rightarrow 2\ ^4_2\text{He}+2n$; 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 $^2_1\text{H}+^3_1\text{H} \rightarrow ^4_2\text{He}+n$ reaction important important have _ In this reaction participation doer of deuterium (^2_1H). 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 : $^6_3\text{Li}+n \rightarrow ^3_1\text{H}+^4_2\text{He}$. 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_3Cl , CH_2Cl_2 , CHCl_3 , CCl_4 in acid harvest paint _ Rayection initial chlorine in the phase molecule light under the influence of homolytic respectively chlorine decomposes into the radical :

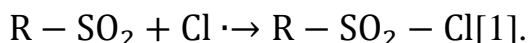
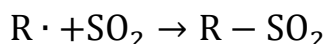
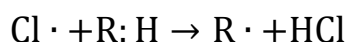


For example ; of CH_4 chlorination seeing we go out ;



Sulfochlorination : Chlorination reaction sulfonyl chloride using

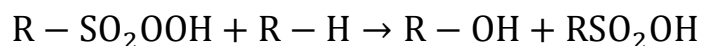
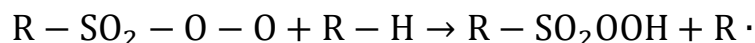
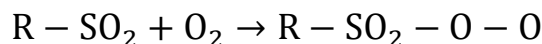
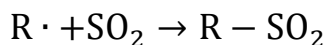
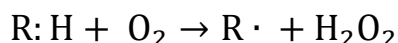
benzoyl peroxide in the presence of take if only _ obtaining monochloroalkanes possible [1]. Washing tools (surface active compounds) in obtaining important important have has been again one reaction - sulfochlorination is also radical-chain . in the mechanism goes _ UV light to alkanes effect under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



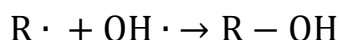
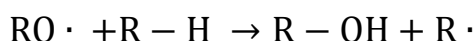
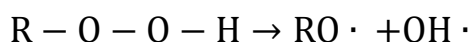
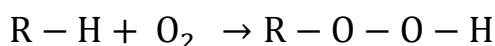
For example ; of propane sulfochlorination seeing we go out ; [5]

CH₃-CH₂-CH₃ SO₂/ 3 / hI » . CH₃-CH₂-CH₃ * CH₃-CH₂-CH₂ SO₂ 2C 1[105-BET]

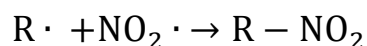
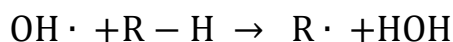
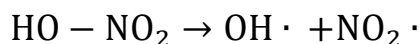
Sulfoxidation :



Oxidation :



Nitration :



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

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