

O'ZBEKISTON RESPUBLIKASI OLIY VA O'RTA MAXSUS TA'LIM VAZIRLIGI

NAMANGAN DAVLAT UNIVERSITETI

KIMYO-BIOLOGIYA FAKULTETI

KIMYO KAFEDRASI

ORGANIK BIRIKMALARNI NOMLASHNING IUPAC NOMENKLATURASI



NAMANGAN 2009

Ushbu uslubiy qo'llanma Vazirlar Mahkamasining 2001 yil 16 avgust 341- sonli, O'zR OO'MTV, O'zRXTV va O'zRDMQ larining 2002 yil 7 mart 71//44//22 - sonli qo'shma buyrug'i, shuningdek va O'zR OO'MTV ning 1999 yil 28 sentyabrdagi 288-sonli sonli buyruqlarini ijrosi sifatida tayyorlandi.

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Uslubiy qo'llanma 5440400-kimyo bakalavr yo'nalishi talabalari uchun ishlab chiqilgan. Uslubiy qo'llanmadan kollej va litsey o'quvchilari, kollokviumlarga tayyorlanayotgan, ilmiy ish olib borayotgan, bitiruv malakaviy ishini bajarayotgan talabalar, magistrlar, ularning raxbarlari, professor-o'qituvchilar va mutaxassislar foydalanishlari mumkin.

Muallif rozilgisiz ko'chirish va ko'paytirish taqiqlanadi!

Uslubiy qo'llanma Kimyo kafedrasining 2009 yil 27 maydagi

9-sonli yig'ilishida muxokama qilingan va ma'qullangan.

SO'Z BOSHI

O'zbekiston Respublikasi o'z mustaqilligiga erishganidan so'ng mamlakatni rivojlantirish va dunyoning etakchi davlatlar qatoridan munosib o'rin olish vazifasi dolzarb vazifa bo'lib qoldi. Ushbu maqsad yo'lida eng avvalo mamlakatni malakali mutahassislarga bo'lgan ehtiyojini qondirish va raqobat bardosh kadrlar bilan boyitish lozim edi. Chunki ekstensiv rivojlanishdan ko'ra intensive rivojlanish sifat jihatdan ustuvordir. Bularni amalga oshirish maqsadida "Kadrlar tayyorlash milliy dasturi" qabul qilindi. Dasturda belgilangan vazifa va maqsadlarga erishish uchun zamonaviy pedagogic va informasion texnologiyalarga asoslangan o'qitish usullari, yangi turdagi adabiyotlar yaratish yoki o'zlashtirish, hamda talabalarga etkazish zaruriyati paydo bo'ldi. Ushbularni hisobga olib Vazirlar Mahkamasi 1998 yil 5 yanvar 4-son "Uzluksiz ta'lim tizimini darsliklar, o'quv adabiyotlar bilan ta'minlashni takomillashtirish to'g'risida" va O'zROO'MTV 1999 yil 28 sentyabrdagi 288-sonli "Uzluksiz ta'lim tizimini darsliklar, o'quv adabiyotlar bilan ta'minlashni takomillashtirish to'g'risida", hamda Vazirlar Mahkamasinig 2001 yil 16 avgust 341- sonli, O'zR OO'MTV, O'zRXTV va O'zRDMQ larining 2002 yil 7 mart 71//44//22 - sonli "Uzluksiz ta'lim tizimi uchun o'quv adabiyotlarining yangi avlodini yaratish Konsepsiyasi"qo'shma buyrug'ini bajarish maqsadida ushbu o'quv qo'llanma tayyorlandi/

Ushbu uslubiy qo'llanma 5440400-Kimyo bakalavr yo'nalishi bo'yicha universitetlarning bakalavriatida tahsil olayotgan talabalar uchun mo'ljallangan.

Hozirgi vaqtda turli fan va texnika sohalarining taraqqiyoti kimyo yutuqlariga asoslangan. Bu yutuqlarni organik kimyo fani yutuqlarisiz tasavvur etish qiyin. Shu sababdan Kimyo yo'nalishi bo'yicha tayyorlayotgan mutaxassis kadrlarni imkoni boricha kengroq ravishda Organik kimyo fanining hozirgi zamon nazariy asoslari, shuningdek organik moddalarning tuzilishi va kimyoviy hossalari orasidagi o'zaro bog'liqlik hamda IUPAC nomemklaturasi bilan qurollantirish zarur. Ushbu uslubiy qo'llanma shu maqsadga erishishni osonlantirish maqsadida yozildi.

Organik kimyoning kimyoviy masalalarni tushuntirish va yechishdagi roli, erishgan yutuqlari, har bir kimyogardan ular bilan uzviy tanish bo'lishni, ularni o'z ilmiy, ishlab chiqarishi yoki pedagogik faoliyatida keng foydalanishi zarur va lozim ekanligini taqozo qiladi. Mazkur uslubiy qo'llanma talabalarning ana shu yo'ldagi harakatini osonlashtirsa va unga ma'lum hajmdagi ma'lumotlarni bersa o'z oldimizga qo'ygan maqsadlarga erishgan hisoblaymiz.

ORGANIK BIRIKMALAR NOMENKLATURASI

VA SINFLASH ASOSLARI

1. Trivial nomenklatura – ba'zi bir organik moddalar uchun qo'llaniladi.
2. Jeneva nomenklaturasi (1892 yil)
3. L'ej nomenklaturasi (1930 yil)
4. IUPAC nomenklaturasi (1947 yildan boshlab) – International Union of Pure and Applied Chemistry (Londonda boshlangan)

Jeneva nomenklaturasida – organik birikmalar nomi asosida eng uzun normal tuzilishli uglevodorodlarnomi yotadi. Prefiks va suffikslar yon zanjirlarni, funksional guruhlarni, funksionalmas o'rinbosarlar va karrali bog'larni ko'rsatib odatda grek sonlari bilan (ba'zan lotin) belgilanadi.

- uglevodorodlarradikallar nomi asosiy zanjirdan oldin, karrali bog'lardan esa keyin keltiriladi. Funksional guruhlar – [C]-A-H tipidagi guruhlariga aytiladi. (A - S, O, N... lekin C emas), shuningdek [C=O] guruh ham.
- Funksionalmas guruhlariga – galogenlar, (-NO) nitrozo, -NO₂ (nitro), -N₃ (azido) guruhlar kiradi. (ular H yo'q)

Asosiy zanjirdagi C atomlarini nomerlash o'rinbosar guruh va karrali bog'larni bir-biriga nisbatan joylashishini belgilash orqali aniqlanadi. uglevodorodlarradikallar karrali bog'larga nisbatan katta hisoblanadi. Agar ikki hil radikal zanjirda teng uzoqlikda yotsa uglerodkam radikal katta hisoblanadi.

L'ej nomenklaturasida ham nomlash asosi sifatida eng uzun uglerod zanjiri tanlanadi, lekin ba'zibir chetlanishlarga ham yo'l qo'yiladi: agar yon radikallar juda murakkab bo'lsa nomlash asosida nisbatan kichik zanjir tanlanishi mumkin. Sharti shundan iboratki yon radikallar oddiyroq bo'lsin!!!

Bundan tashqari bosh uglerodzanjir eng uzun bo'lmasa ham o'zida funksional guruh tutushi shart, agar funksional guruhlar bir nechta bo'lsa eng ko'p funksional guruh tutgan zanjir tanlanadi.

Analogik tarzda bosh zanjirga karrali bog'lar kiritiladi. Jeneva nomenklaturasidan farqli o'laroq L'ej nomenklaturasida karboksil guruh bazida almashinadigan

funksional guruh sifatida qaraladi. Nomerlash avvalo funksional guruhda, keyin ikkinch yoki uchinchi bog'da va ohiri atomlar yoki radikallarda (prefiksli) boshlanadi. Funksional guruhlar bir nechta bo'lsa nomerlashni bosh funksional guruh aniqlab beradi (oksialdegidlarda - CHO guruh, oksikislotalarda -COOH guruh).

IUPAC – 1957 QOIDASI

A uglevodorodlarlar nomenklaturasi (asiklik, siklik, terpen) va **B** (asosiy geterosiklik sistemalar) nomenklaturasidan tashkil topgan.

IUPAC – 1965 QOIDASI

C, H, O, N, Gal, S, Se, Te, va C tutgan xarakteristik guruhli organik birikmalar nomenklaturasidan tashkil stopgan.

IUPAC qoidalari Jeneva nomenklaturasi prinsiplari va belgilashlariga asoslangan, lekin prinsiplarni qo'llashda L'ej nomenklaturasi qoidalarini tartiblashtirilgan va rivojlantirilgan.

Asiklik birikma asosida albatta eng uzun uglerod anjirlar tanlanadi, shu bilan birgalikda normal va tarmoqlangan yon zanjir nomenklaturasi yaxshilab ishlab chiqilgan. Radikallarning kattalik tartibi o'rnatilgan, nomlashdagi tartibi va asosiy zanjir yoki sikldagi atomlarni nomerlashda uglevodorodlar hosilalari nomenklaturasida xarakteristik guruhlar to'g'risida tushuncha kiritilgan, bu termin bilan xamma uglerodmas o'rinbosarlar birlashtirilgan.

Xarakatchan guruhlar kattalik tartibi o'rnatilgan, ularni nomlashda ham, modda asosida ham, atomlar nomeri tartibini aniqlash yotadi.

Har bir xarakatchan guruh uchun 2 usulda - prefiks va suffiks bilan nomlash belgilangan.

Nomlashda faqat karrali bog'lar va bitta xarakatchan guruh suffiksida bo'ladi, qolganlari prefiks bilan belgilanadi.

Raqamlarni qo'yishda rasmiy tartib yo'q, lekin amalda raqamlar prefiksdan oldin qo'yiladi, suffikslarniki esa karrali bog'ga tegishligi asosiy zanjirdan oldin qo'yiladi,

agar bir nechta suffikslar bo'lsa birinchisiga tegishli raqam asosdan oldin qo'yiladi, qolganlari esa tegishli suffiksdan oldin qo'yiladi.

Misol:

	IUPAC	JENEVA
$\begin{array}{c} \text{CH}_3 \\ \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{H} \quad \text{H}_2 \end{array}$	2-metilbutan	2-metilbutan
$\begin{array}{c} \text{H}_2\text{C}=\text{C}-\text{C}-\text{CH}_3 \\ \quad \\ \text{H} \quad \text{H}_2 \end{array}$	1-buten	buten-1
$\begin{array}{c} \text{H} \quad \text{H}_2 \\ \quad \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \\ \text{OH} \end{array}$	2-butanol	butanol-2
$\begin{array}{c} \text{OH} \\ \\ \text{H}_3\text{C}-\text{C}=\text{C}-\text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{H} \end{array}$	2-metil-2-buten	2-metilbuten-2
$\begin{array}{c} \text{CH}_3 \\ \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{CH}_3 \\ \\ \text{OH} \end{array}$	2-metil-2-butanol	2-metilbutanol-2
$\begin{array}{c} \text{H}_2\text{C}=\text{C}-\text{C}\equiv\text{CH} \\ \\ \text{CH}_3 \end{array}$	2-metil-1-buten-3-in	2-metilbuten-1-in-3
$\begin{array}{c} \text{HC}\equiv\text{C}-\text{C}=\text{C}-\text{C}=\text{CH}_2 \\ \quad \quad \\ \text{H} \quad \text{H} \quad \text{H} \end{array}$	1-3-geksadien-5-in	geksadien-1-3in-5
$\begin{array}{c} \text{H}_3\text{C}-\text{C}=\text{C}-\text{CH}_2\text{OH} \\ \quad \\ \text{H} \quad \text{CH}_3 \end{array}$	2-metil-2-buten-1-ol	2-metilbuten-2-ol-1
$\begin{array}{c} \text{CH}_3 \\ \\ \text{H}_3\text{C}-\text{C}-\text{C}-\text{C}-\text{C}=\text{CH}_2 \\ \quad \quad \quad \\ \text{H}_2 \quad \text{H}_2 \quad \text{O} \quad \text{H} \\ \\ \text{CH}_3 \end{array}$	4-gidroksi-4-metil-1-gepten-3-on	4-metilgepten-1-ol-4-on-3

IUPAC – NOMENKLATURASI QOIDALARI

A. Uglevodorodlar.

Asiklik uglevodorodlar.

A-1 qoida.

1.1. - Metan, etan, propan, butan – nomlari saqlanib qoladi. Qolganlari nomiga grek raqami va *-an* qo'shimchasi ishlatiladi.

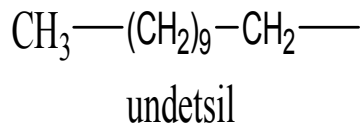
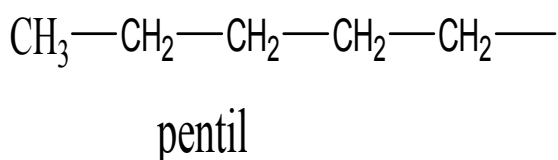
Umumiy nomlari – Alkanlar:

Misol:

1. Metan 2. Etan 3. Propan 4. Butan 5. Pentan

1.2. To'yingan, to'yinmagan asiklik uglevodorodlardan H ni tortib olib hosil qilingan bir valentli radikallar nomi tegishli uglevodorod nomidagi *-an* o'rniga *-il* qo'shib hosil qilinadi.

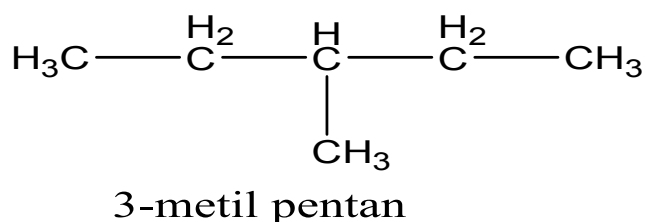
Misol:



A-2. qoida

2.1. - To'yingan va tarmoqlangan asiklik uglevodorod nomi eng uzun zanjirga prefiks qilib yon zanjir belgilanishini qo'shish bilan hosil qilinadi.

Misol:



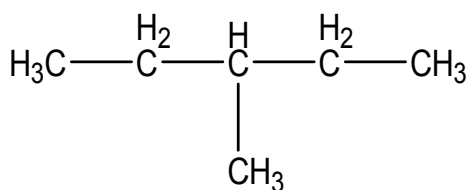
Quyidagi nomlar faqat almashinmagan uglevodorodlar uchun saqlanish qolgan.

Misol:

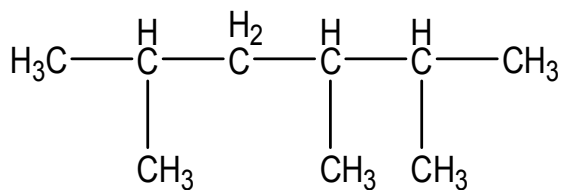
izobutan	$(\text{CH}_3)_2\text{CH}-\text{CH}_3$
izopentan	$(\text{CH}_3)_2\text{CH}-\text{CH}_2-\text{CH}_3$
neopentan	$(\text{CH}_3)_4\text{C}$
izogeksan	$(\text{CH}_3)_2\text{CH}-\text{CH}_2-\text{CH}_2-\text{CH}_3$

2.2. - Eng uzun zanjirni bir tomonidan ikkinchi tomonga qarab arab raqamlarida nomerlanadi. Nomerlash yo'nalishi shunday tanlanadiki, yon zanjirni ko'rsatuvchi raqamlar eng kichik bo'lishi shart. Agar bir nechta farqli raqamlar qatori paydo bo'lsa ularni o'sib borish tartibida solishtiradilar, eng kichik raqamli qator bo'lib, faqat qoladigan raqami kichik bo'lgani tanlanadi. Bu prinsipga o'rinsosar tabiatidan qat'iy nazar amal qilmaydi.

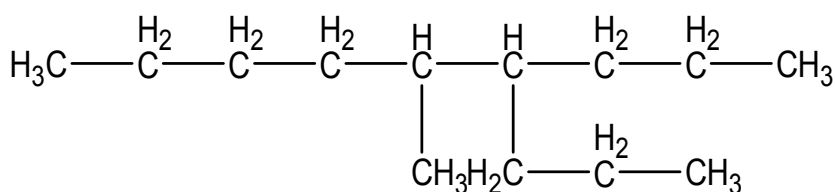
Misol:



3-metil pentan



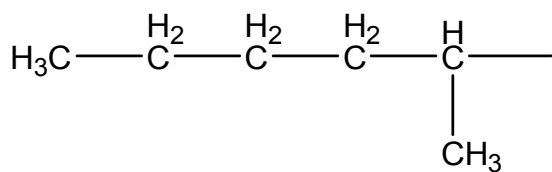
2,3,5-trimetil gesan
(2,3,5-trimetil geksan)



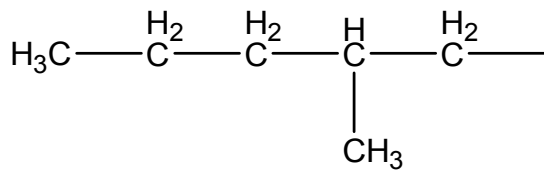
5-metil-4-propil nonan
(5-metil-6-propil nonan)

2.25. - Bir valentli tarmoqlangan alkan radikallarini nomlashda tarmoqlanmagan eng uzun alkil nomiga prefiks qo'shib belgilangan yon zanjir ko'rsatiladi, boshlang'ich bog'ga birikkan uglerod birinchi nomerni oladi.

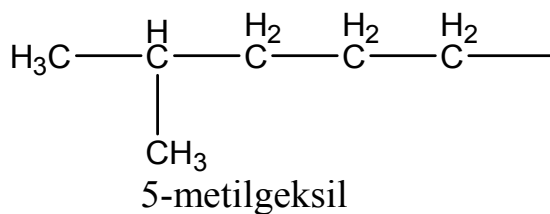
Misol:



1-metipenti



2-metipenti



2.3. - Agar ikki yoki ko'proq yon zanjirlar bo'lsa, ularni nomlashda:

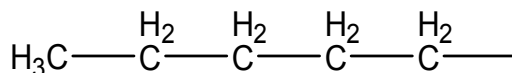
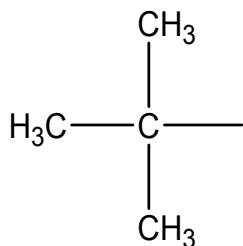
a) murakkabligi oshib borish tartibida yoki

b) alfavit tartibida sanab o'tish kerak.

a). Murakkablik oshib borish tartibi quyidagi prinsiplarga asoslangan:

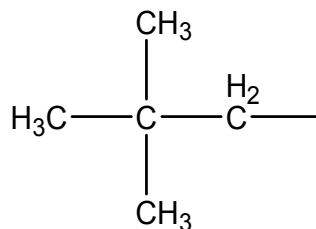
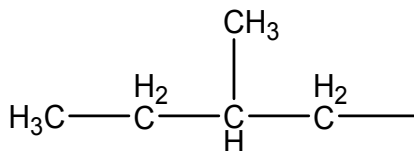
I. Umumiy uglerod atomlari kam bo'lgan zanjir oddiyroq hisobladadi.

Misol:



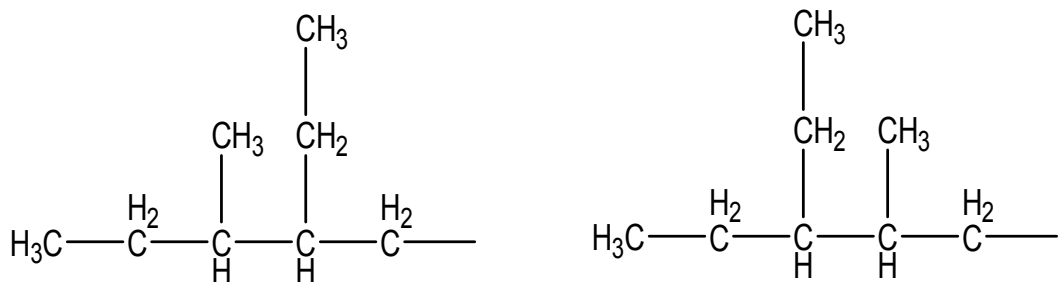
II. Uzun zanjirli yon zanjir soddaroq hisoblanadi.

Misol:



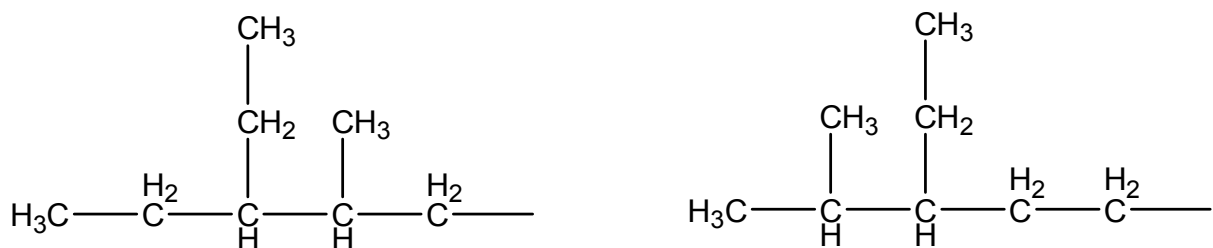
III. Eng uzun o'rinbosar asosiy zanjirda eng kichik nomerga ega bo'lsa bunday yon zanjir sodda hisoblanadi.

Misol:



IV. Kattaligi bo'yicha keyingi o'rinbosar kichik nomer oladigan yon zanjir sodda hisoblanadi.

Misol:



V. Eng to'yingan zanjir sodda hisoblanadi.

Misol:



VI. Karrali bog' holati eng kichik nomer bilan belgilangan zanjir sodda hisoblanadi.

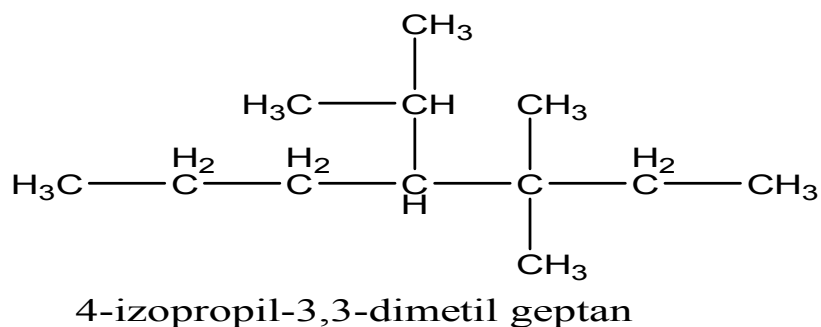
Misol:



b). Alfavitli tartib quyidagicha belgilanadi:

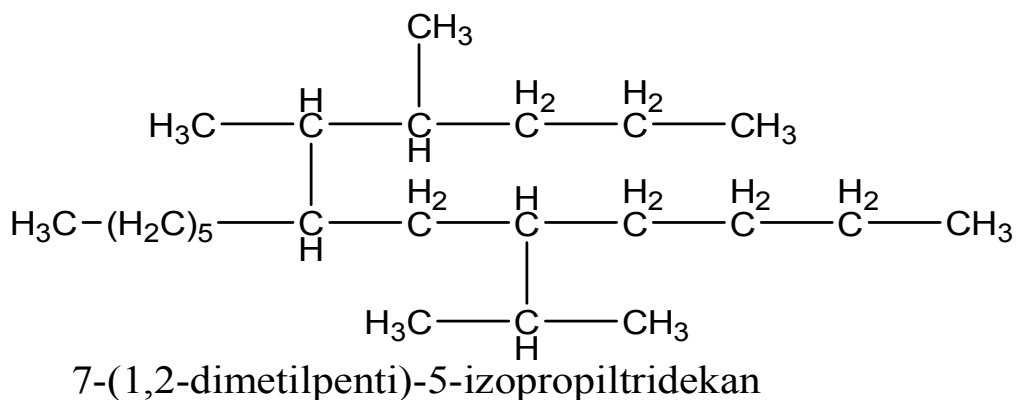
I. Oldin prefiks qiymatlari bilan alfavit tartibida radikallar qo'yib chiqiladi.

Misol:



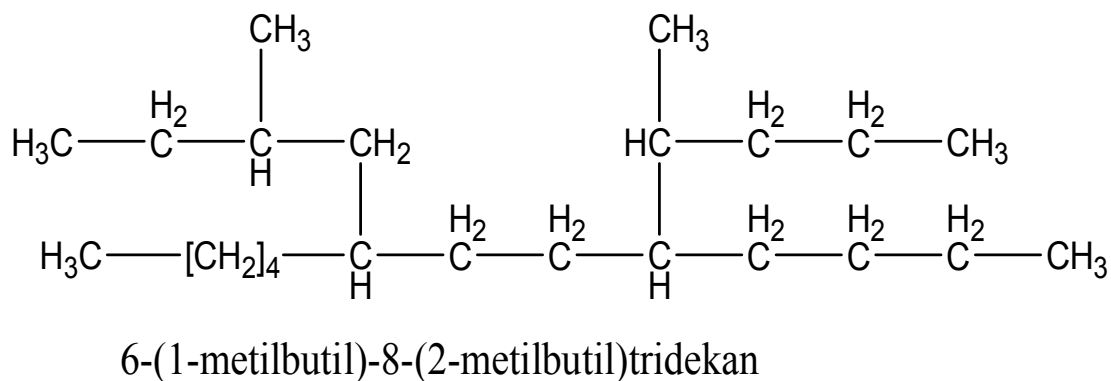
II. Murakkab radikal nomi uning to'liq nomidagi birinchi harf asosida joylanadi.

Misol:



III. Agar radikal nomi bir hil soʻzlardan tashkil topgan boʻlsa, yon tarmoqlanish kichik nomerli boʻlgan radikalga birinchi oʻrin beriladi.

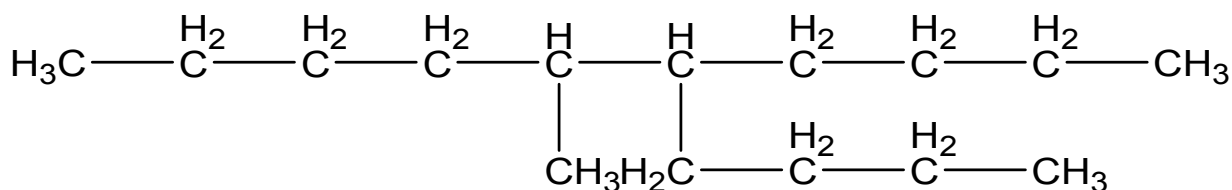
Misol:



Misol:

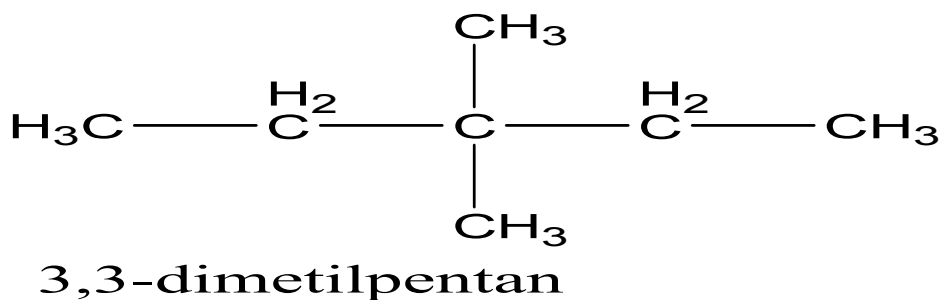
$$\begin{array}{ccccccccccccccc} \text{H}_3\text{C} & - & \text{C}^{\text{H}_2} & - & \text{C}^{\text{H}_2} & - & \text{C}^{\text{H}_2} & - & \text{C}^{\text{H}} & - & \text{C}^{\text{H}} & - & \text{C}^{\text{H}_2} & - & \text{C}^{\text{H}_2} & - & \text{C}^{\text{H}_2} & - & \text{CH}_3 \\ & & & & & & & & | & & | & & & & & & & & \\ & & \text{H}_3\text{C} & - & \text{C}^{\text{H}_2} & - & \text{C}^{\text{H}_2} & - & \text{CH}_2 & & \text{CH}_3 & & & & & & & & \end{array}$$
$$\begin{array}{ccccccc}
 \text{H}_3\text{C} & -\text{C}^{\text{H}_2}- & \text{C}^{\text{H}_2}- & \text{C}^{\text{H}}- & \text{C}^{\text{H}}- & \text{C}^{\text{H}_2}- & \text{C}^{\text{H}_2}-\text{CH}_3 \\
 & & & | & | & & \\
 & & \text{H}_3\text{C}-\text{CH} & & \text{CH}_2 & & \\
 & & | & & | & & \\
 & & \text{CH}_3\text{H}_2\text{C}-\text{CH}_3 & & & &
 \end{array}$$

b)


$$\begin{array}{ccccccc} \text{H}_3\text{C} & -\text{C}_{\text{H}_2}- & \text{C}_{\text{H}_2}- & \text{C}- & \text{C}- & \text{C}_{\text{H}_2}- & \text{C}_{\text{H}_2}-\text{CH}_3 \\ & & & | & | & & \\ & & & \text{CH}_2 & \text{HC}-\text{CH}_3 & & \end{array}$$

14

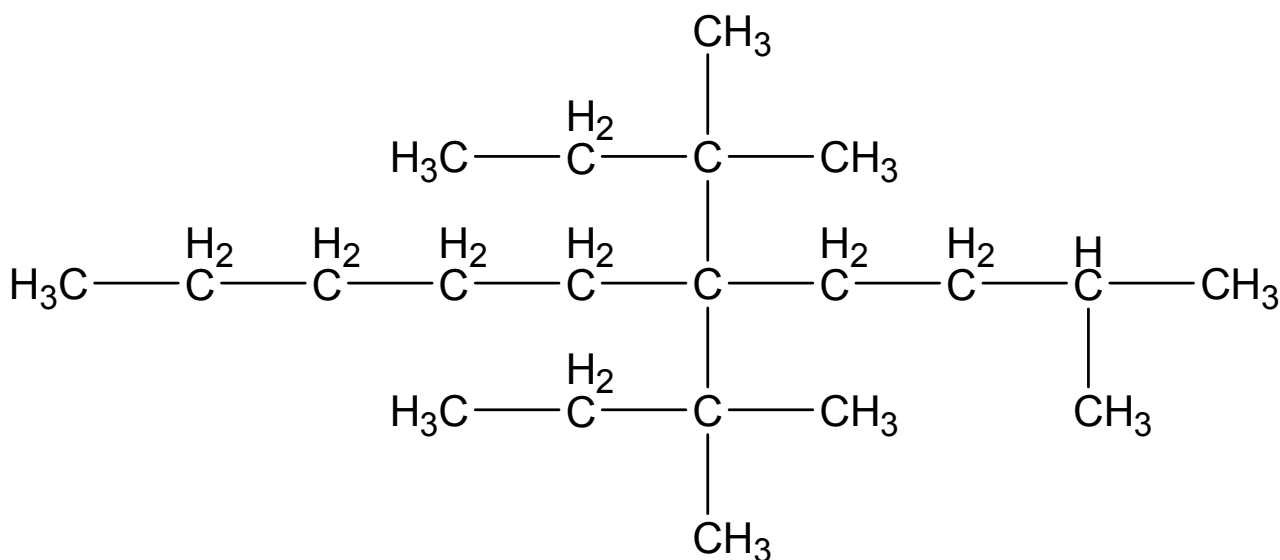
Misol:



Bir hil almashingan radikallarni ko'paytiruvchi prefikslar bilan belgilanishi mumkin: *bis-*, *tris-*, *tetrakis-*, *pentakis-*, ...

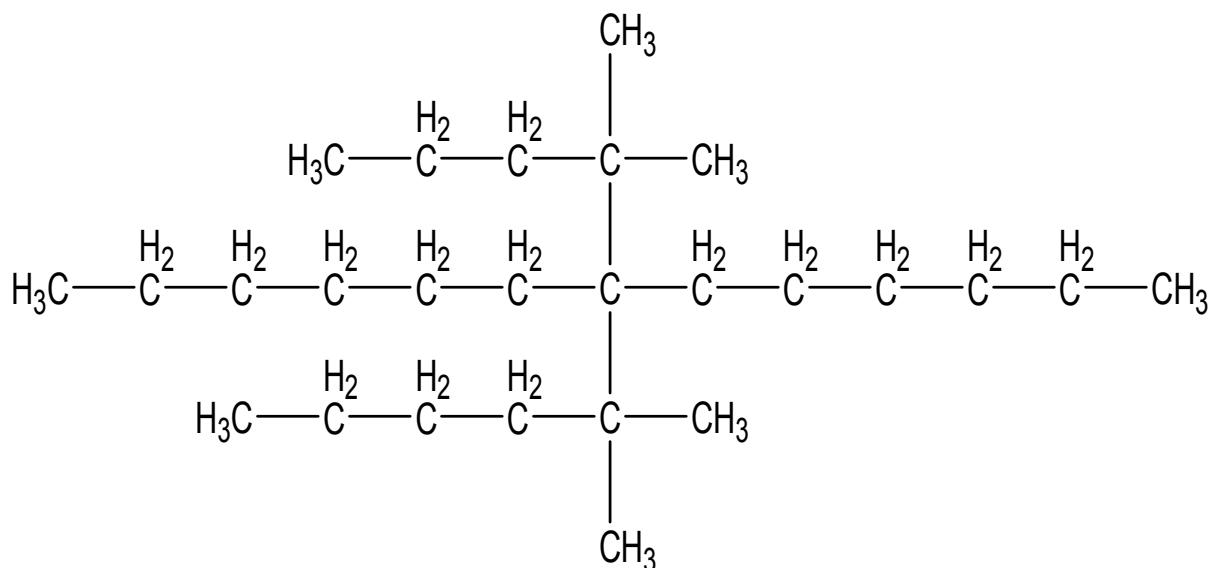
Yon zanjirni tavsiflovchi ko'rinish qavslar ichiga olinishi mumkin yoki yon zanjirdagi uglerod atomlari shtrixli sonlar bilan belgilanishi mumkin:

Misol:



- Shtrixlar ishlatilganda va murakkablik tartibida bo'lsa: 2-metil-5,5-bis-1¹,1¹-dimetil propil dekan
- Qavslar ishlatilsa va alfavit tartibida: 5,5-bis (1,1-dimetil propil)-2-metil dekan
- Shtrixlar ishlatilsa va alfavit tartibida: 5,5-bis-1¹,1¹-dimetil propil-2-metil dekan

Misol:

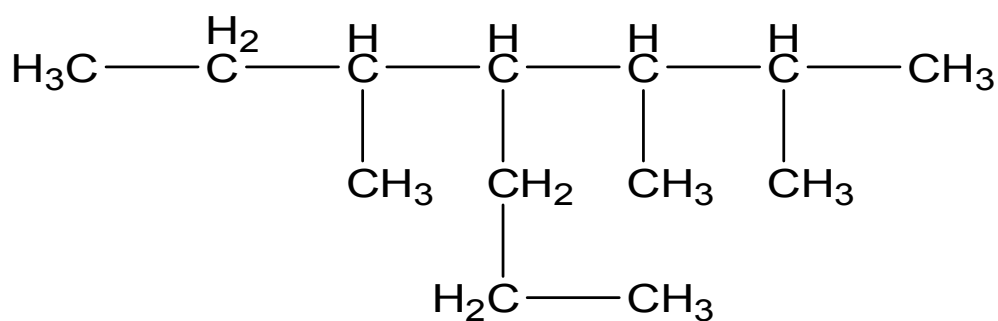


- Shtrixlar ishlatilganda va murakkablik tartibida bo'lsa: 7-1¹,1¹-dimetil butil-7-1¹¹,1¹¹-dimetil pentil tridekan
- Qavslar ishlatilsa va alfavit tartibida: 7-1,1-dimetil butil-7-1,1-dimetil pentil tridekan

2.6. - Agar to'yingan tarmoqlangan asiklik uglevodorodda bir hil uzunlikdagi zanjirlar bo'lsa, asosiy zanjir sifatida quyidagi ketma-ketlik tanlanadi.

- Eng ko'p yon zanjir tutgan zanjir tanlanadi.

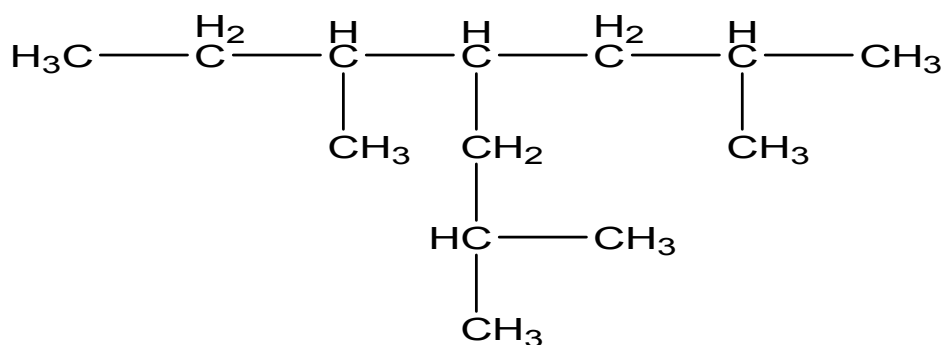
Misol:



2,3,5-trimetil-4-propilheptan

b) Yon zanjirlari eng kichik nomer olgan zanjir tanlanadi.

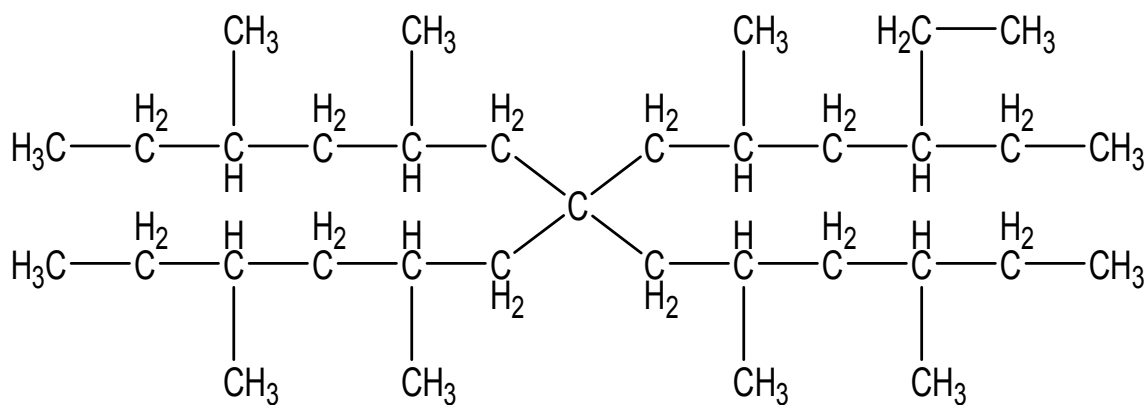
Misol:



4-izobutil-2,5-dimetilgeptan

c) Kam yin zanjirda uglerod atomlari ko'p tutgan zanjir tanlanadi

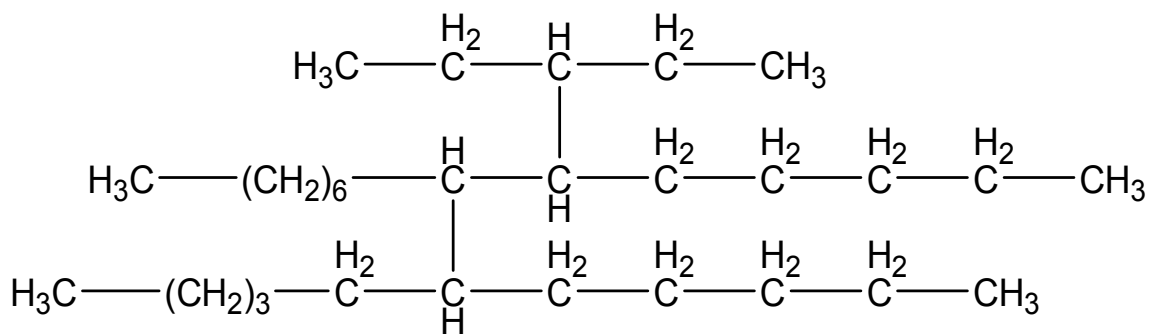
Misol:



7,7-bis(2,4-dimetilgeksil)-5,9,11-trimetil-3-etiltridekan

d) Eng kam tarmoqlangan zanjir tutgan zanjir tanlanadi.

Misol:



6-(1-etilpropil)-7-(1-pentilgeksil)tetradekan

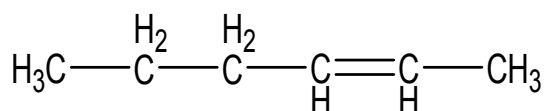
A-3 qoida

3.1. - Bitta qo'shbog' tutgan tarmoqlanmagan, to'yinmagan uglevodorodlar nomi tegishli to'yingan uglevodorod nomidagi *-an* o'rniga *-en* qo'yib hosil qilinadi. Ikki va undan ko'p qo'shbog' tutgan bo'lsa *-adien*, *-atrien*,... qo'shib hosil qilinadi

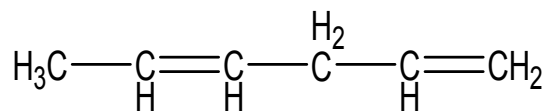
Alkenlar, alkadienlar, alkatrienlar – oila nomlari bo'lib hisoblanadi.

Zanjir qo'shbog'lar holati eng kichik raqam oladigan qilib nomerlanadi.

Misol:

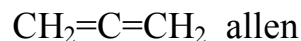


2-geksen



1,4-geksadien

Quyidagi sistematikmas nomlar saqlanib qolgan:



3.2 - To'yinmagan tarmoqlanmagan bitta uch bog' tutgan asiklik uglevodorod nomi tegishli to'yingan uglevodorod nomidagi *-an* o'rniga *-in* qo'shib hosil qilinadi. Ikki yoki uch bog' bo'lsa *-adiin*, *-atriin*,... bilan nomlanadi.

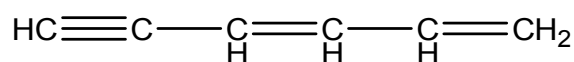
Zanjir shunday nomlanadiki, uch bog' holatlari eng kichik raqam olishi kerak.



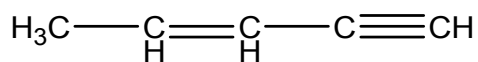
3.3. - To'yinmagan tarmoqlanmagan asiklik uglevodorodlar, o'zida qo'sh bog' va uch bog' tutgan bo'lsa, tegishli to'yingan uglevodorod nomidagi *-an* qo'shimchasini *-enin*, *-adienin*, *-atrienin*, *-endiin*... va boshqalar qilib o'zgartiriladi. Qo'shbog' va uchbog'lar iloji boricha kichik nomer olishi kerak, bunda uch bog' qo'sh bog'ga nisbatan kichik nomer olsa ham. Agar nomerlashda variantlar bo'lsa, eng kichik nomerli sifatida qo'sh bog'ni belgilash kerak.

Misol:

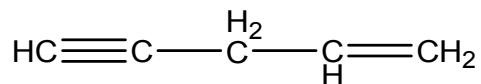
1,3geksadien-5-in



3-penten-1-in



1-penten-4-in

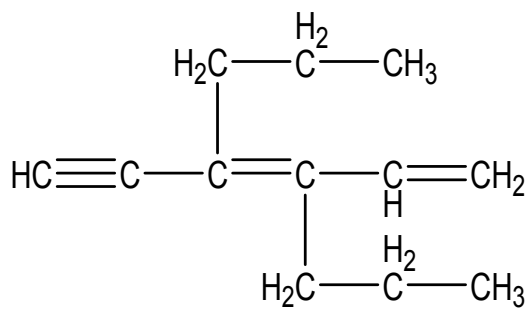


3.4 - To'yinmagan tarmoqlangan asiklik uglevodorodlar eng ko'p qo'sh bog' yoki uch bog' tutgan tarmoqlanmagan uglevodorodlarning hosilasi deb qaraladi. Agar zanjir tanlashda imkoni bo'lsa:

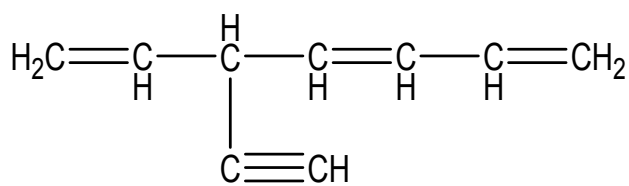
- 1) Eng ko'p uglerod atomi tutgan zanjir tanlanadi.
- 2) Agar uglerod atomlar soni teng bo'lsa eng ko'p qo'sh bog' tutgan zanjir tanlanadi.

Qolganlarida bo'lsa to'yingan, tarmoqlangan asiklik uglevodorodlarni nomlashdagi kabi ish olib boriladi. Zanjir shunday nomerlanadiki qo'sh bog' yoki uch bog' holati A-3.3 qoidaga muvofiq eng kichik qiymat olishi kerak.

Misol:



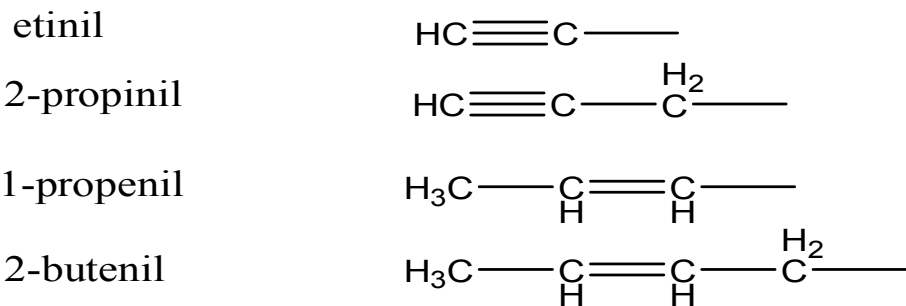
3,4-dipropil-1,3-geksadien-5-in



5-etinil-1,3,6-heptatrien

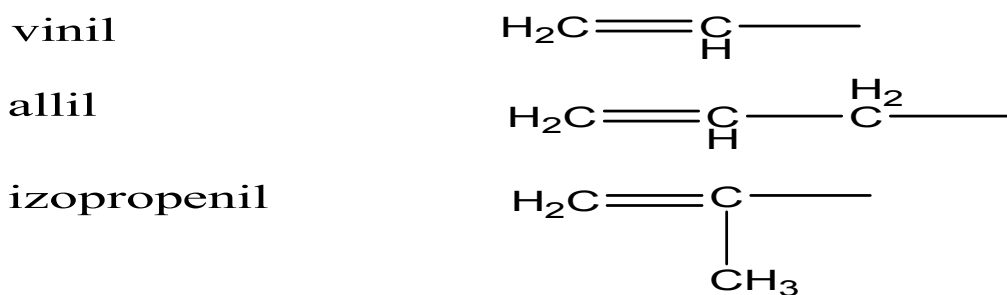
3.5 – To'yinmagan asiklik uglevodorodlardan olingan bir valentli radikallar – *enil*, *-inil*, *-dienil*,... qo'shimchalar bilan tugallanadi va qo'sh bog'lar holatini raqamlar bilan ko'rsatiladi. Erkin valentli uglerod atomini birinchi raqam bilan nomlanadi.

Misol:



Qoidadan tashqari sifatida quyidagi nomlar saqlanib qoladi .

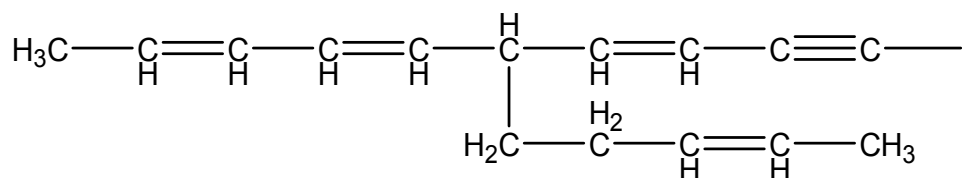
Misol:



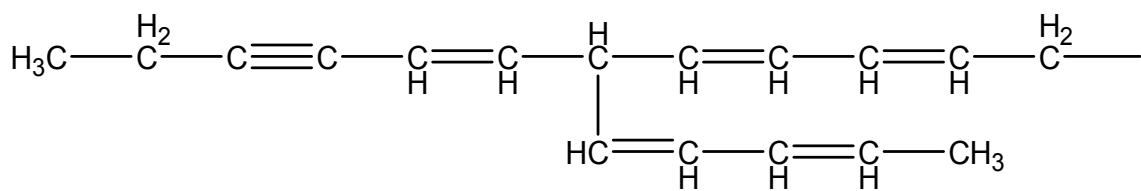
3.6.- Radikalda asosiy zanjir sifatida quyidagi qoidalar bo'yicha tanlanadi.

1. karrali bog'lar eng ko'p bo'lgani.
2. uglerod atomi eng ko'p bo'lgani.
3. maksimal qo'sh bog' tutgani.

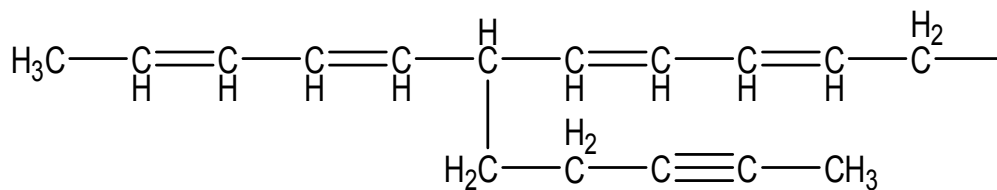
Misol:



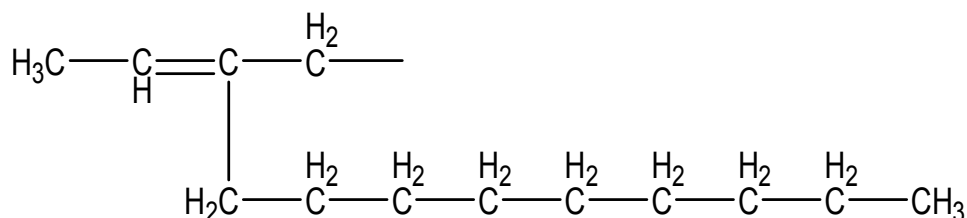
5(3-petenil)-3,6,8-dekatren-1-inil



6(1,3-pentadienil)-2,4,7-dodekatrien-9-inil



6(1-penten-3-inil)-2,4,7,9-undekatetraenil

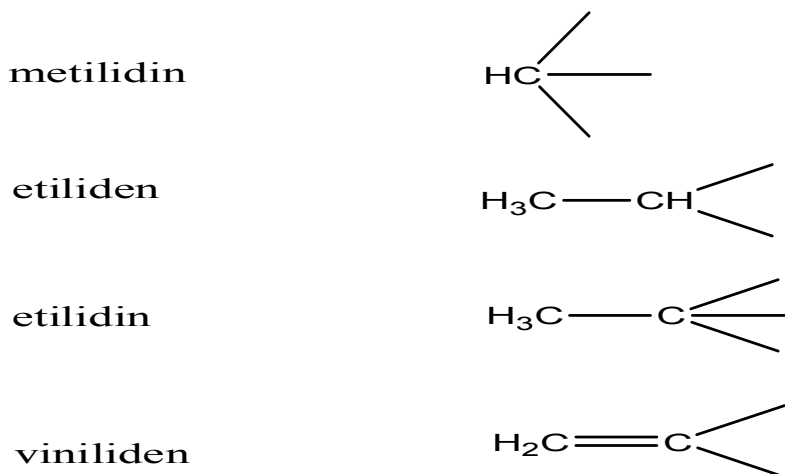


2-nonil-2-butenil

A-4 qoida

4.1. - Bir valentli asiklik uglevodorod radikallaridagi erkin valentli uglerod atomidan bir yoki ikki vodorod atomini tortib olib hosil qilingan II va III valentli radikallar tegishli bir valentli radikal (*-il*) nomiga *-iden* yoki *-idin* qo'shimchasi qo'shib nomlanadi. Erki valentli uglerod atomi 1 raqamini oladi.

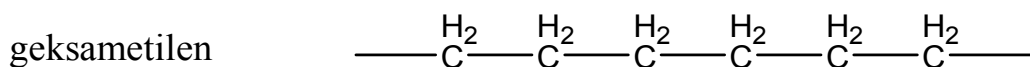
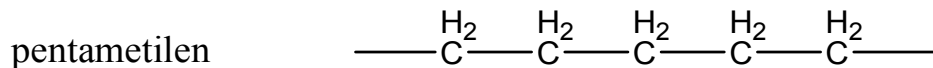
Misol:



CH₂ radikali uchun metilen nomi saqlanib qoladi.

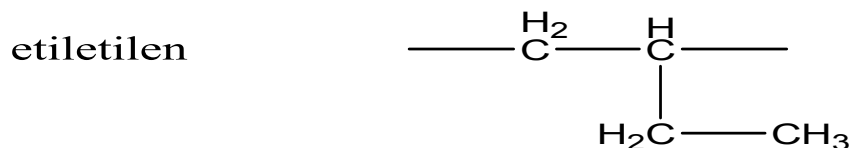
4.2. - Normal alkanlardagi ikki chetki uglerod atomlaridan vodorodni tortib olib hosil qilingan ikki valentli radikallarni quyidagicha nomlanadi: *etilen-*, *tetrametilen-*, ...

Misol:



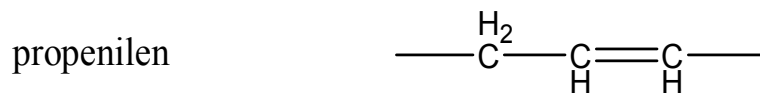
Almashingan ikki valentli radikallarni nomi A-2.2 va A-2.25 qoidalar bo'yicha hosil qilinadi.

Misol:



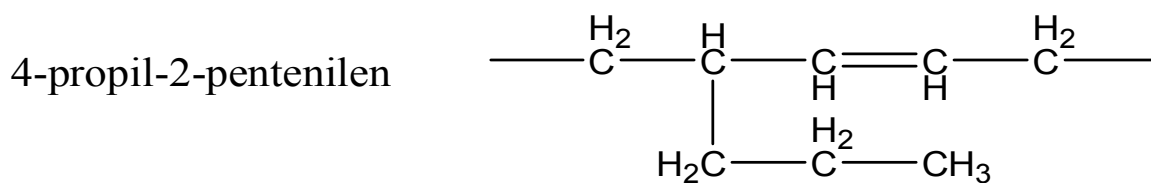
4.3. - Tarmoqlanmagan alkin, alken, alkadienlarning chetki atomlaridan vodorodni tortib olib hosil qilingan ikki valentli radikallar tegishli *-en*, *-dien*, *-in*, ... va boshqalarni, *-enilen*, *-dienilen*, *-inilen*, ... larga almashtirib yoziladi, qo'sh bog' va uch bog'lar holati ko'rsatiladi.

Misol:



---CH=CH--- (etinilen) uchun vinilen nomi saqlanib qolgan. Almashingan ikki valentli radikallarni A-3.4 qoida bo'yicha yasaladi.

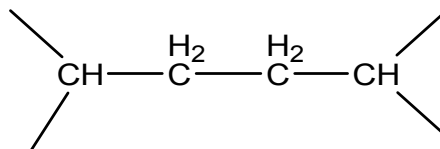
Misol:



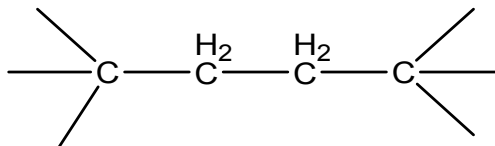
4.4. - Uch valentli, to'rt valentli va undan ko'p valentli asiklik uglevodorod radikallari, ikki va undan ko'p uglerod atomlaridan tashkil topgan bo'lsa yoki zanjirning har qaysi chetida bir va birnecha erkin valentliklarga ega bo'lsa, uglevodorod nomiga bir erkin valentlik bo'lsa *-il*, ikki erkin valentlik bo'lsa *-iliden*, uch erkin valent bo'lsa *-ilidin* qo'shib nomlanadi. Agar bir radikalning o'zida erkin valentliklarni turli tiplari bo'lsa ularni quyidagi tartibda nomerlanadi va aytiladi: *-il*, *-iliden*, *-ilidin*.

Misol:

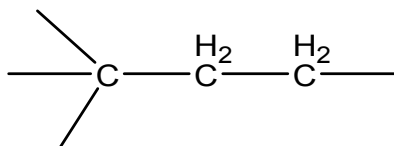
butandiiliden



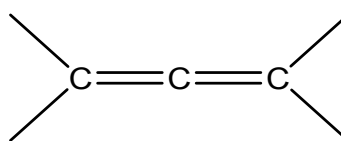
butandiilidin



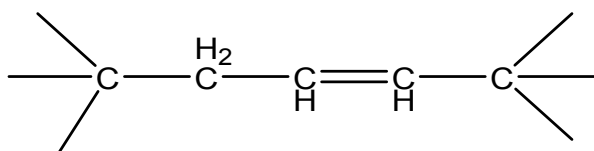
1-propanil-3-ilidin



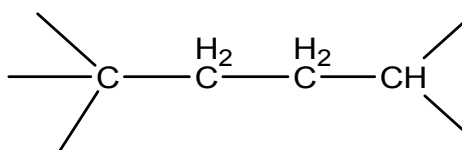
propadiendiiliden



2-pentendiilidin

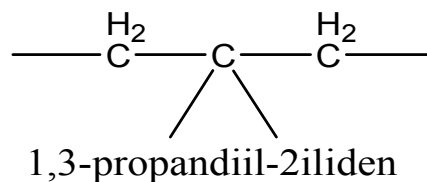
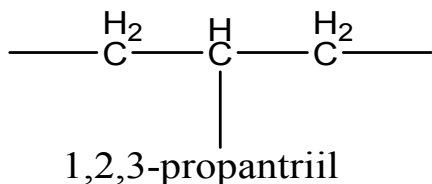


1-butaniliden-4-ilidin



4.5. - Zanjirning har bir chetki atomida uch va undan ortiq erkin valentlik uglerod atomi tutgan yoki oraliq uglerod atomlarida qo'shimcha erkin valentlikka ega bo'lgan ko'p valentli radikallar, tegishli uglevodorod nomiga –triil, -tetraail, -diiliden, -diililiden qo'shimchalarini qo'shib yoziladi.

Misol:



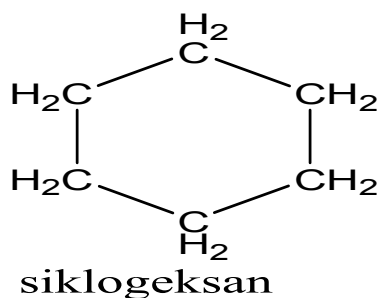
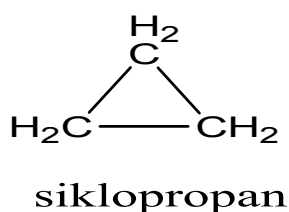
MONOSIKLIK UGLEVODORODLAR

A-11 qoidasi

11.1. - To'yingan monosiklik uglevodoronlarni nomi o'shancha uglerod atomi tutgan to'yingan asiklik uglevodorodlar nomiga siklo- prefiksini qo'shib yasaladi.

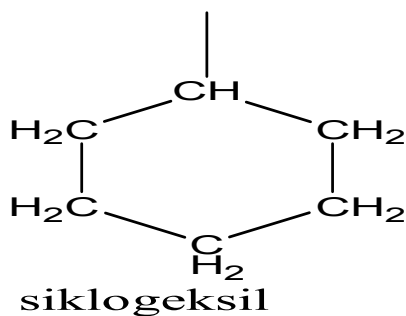
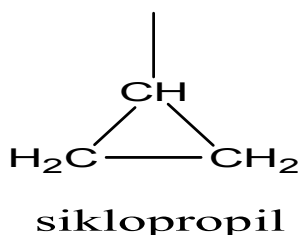
Monosiklik uglevodorodlarni nomi sikloalkanlardir

Misol:



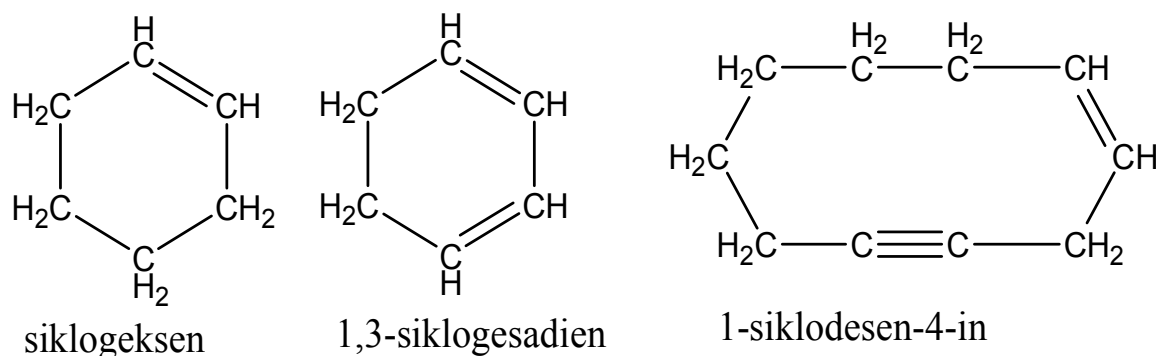
11.2. - Sikloalkanlardan hosil qilingan bir valentli radikallar tegishli uglevodorod nomidagi *-an* qo'shimchasini *-il* qo'shimchasiga almashtirib hosil qilinadi. Bunda erkin valentli uglerod atomiga 1 raqami beriladi.

Misol:



11.3. - To'yinmagan monosiklik uglevodorodlarning nomi tegishli sikloalkan nomidagi *-an* o'rniga *-en*, *-adien*, *-atrien*, *-in*, *-adiin* va hakozolarni qo'yib hosil qilinadi. Qo'sh bog' va uch bog' holatlari A-3.3 qoidaga ko'ra eng kichik qiymat oladigan qilib belgilanadi.

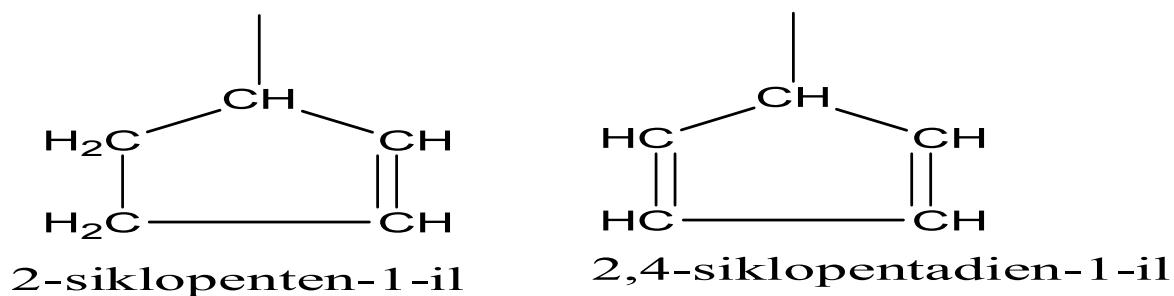
Misol:



Metilensiklopentadien uchun –fulven, siklogeksatrien-1,3,5 uchun –benzol nomlari saqlanib qoladi.

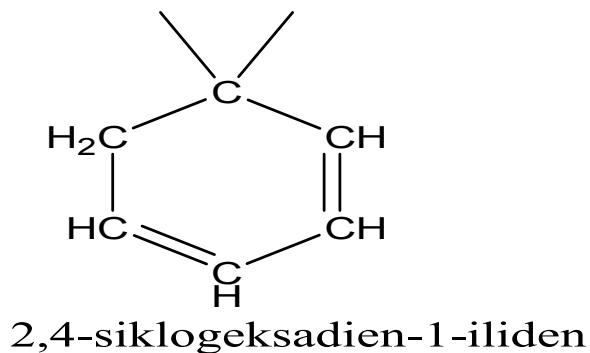
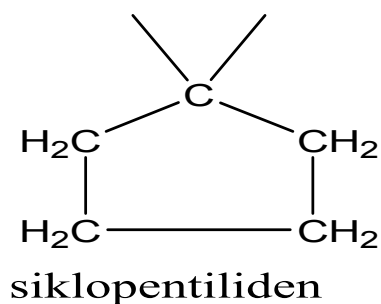
11.4. - To'yingan monosiklik uglevodorodlardan olingan bir valentli radikallar *-enil*, *-inil*, *-dienil*,... qo'shimchalar qo'shib nomlanadi, qo'sh bog' va uch bog' holatlari A-3.3 qoidasiga binoan belgilanadi. Erkin valentli uglerod atomiga 1 raqami beriladi. *Fenil* radikali nomi saqlanib qolgan

Misol:



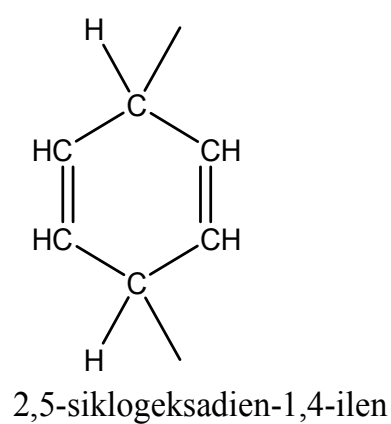
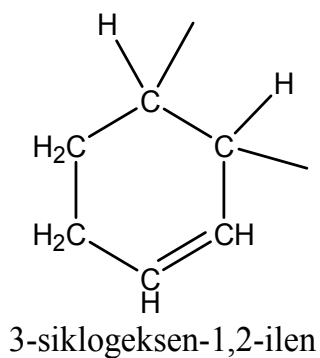
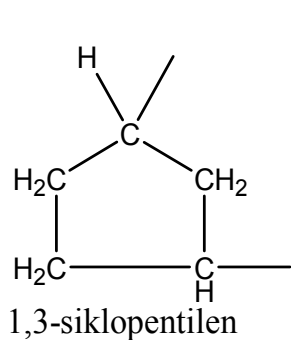
11.5. - To'yingan yoki to'yingan monosiklik uglevodoroddagi bir uglerod atomidan ikki atom vodorodni tortib olib hosil qilingan ikki valentli radikallar nomi – *an*, *-en*, *-in* qo'shimchalarini tegishli ravishda *-iliden*, *-eniliden* va *-iniliden* larga almashtirib hosil qilinadi. Erkin valentli uglerod atomi 1-nomerli bo'ladi.

Misol:



11.6. - To'yingan yoki to'ynmagan monosiklik uglevodorodlar xalqasidagi ikkita turli uglerod atomidan vodorod atomlarini tortib olib hosil qilingan ikki valentli radikallar nomi –an,- en, -dien, -in va hokozalarni, -ilen, -enilen, -dienilen, -inilen va hokozo qo'shimchalarga almashtirib yasaladi, qo'sh bog' yoki uch bog' holatlari, shuningdek birikish o'rni ko'rsatiladi. Eng kichik nomerlar bilan erkin valentli atomlar belgilanadi.

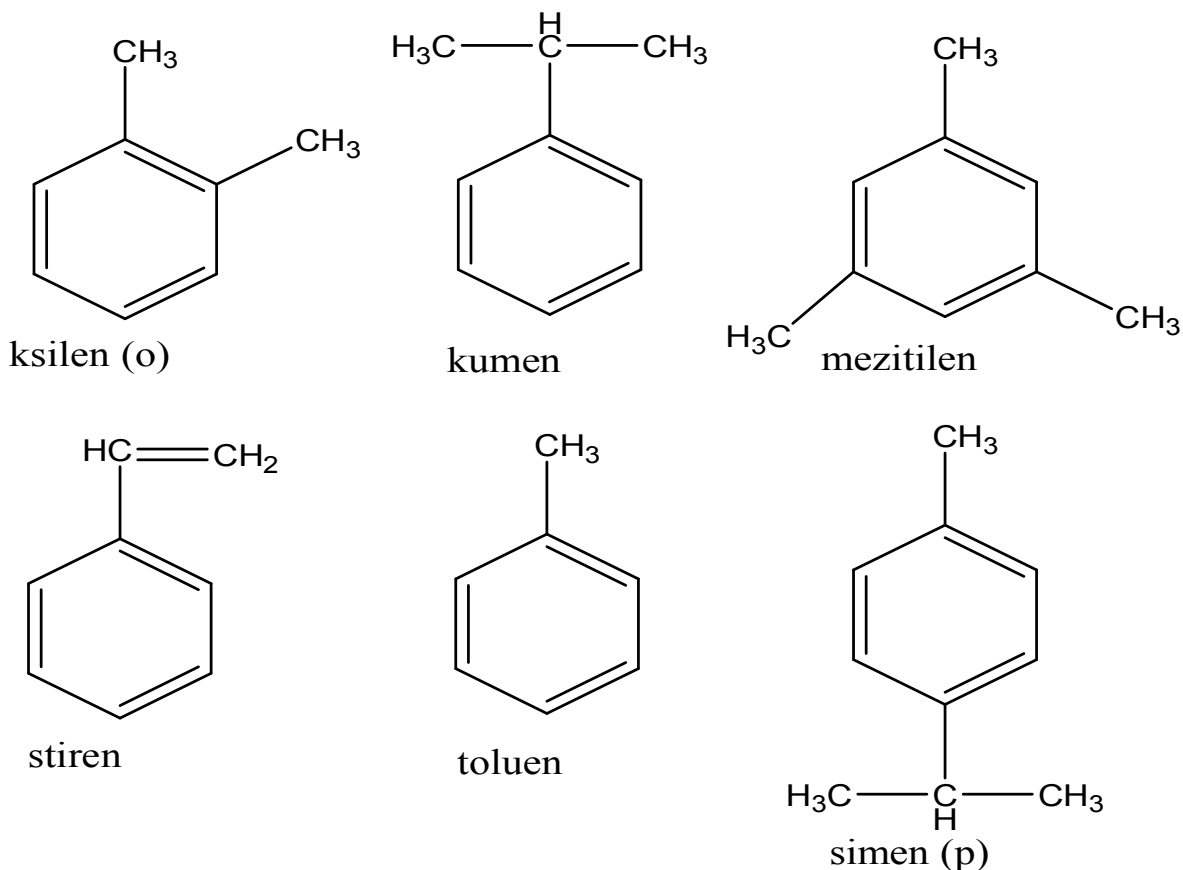
Misol:



A-12 qoida

12.1. - Quyidagi almashingan monosiklik aromatik uglevodorodlarning nomlari saqlanib qolgan.

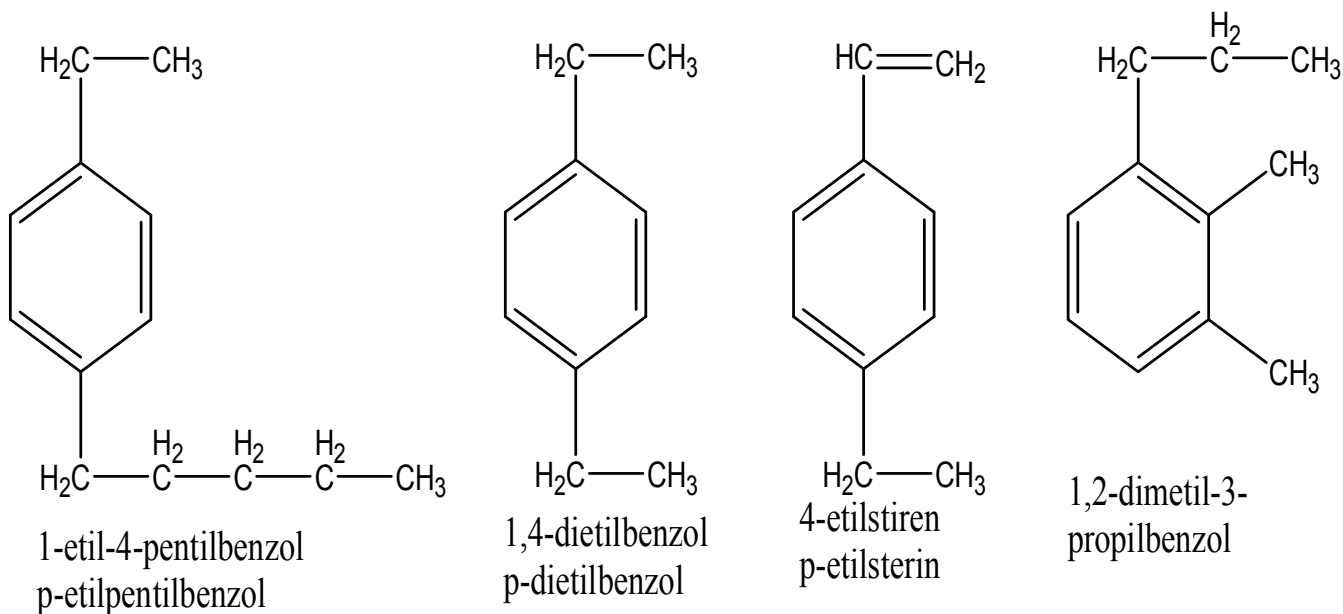
Misol:



12.2. - Qolgan almashingan monosiklik aromatik uglevodorodlarni *benzen* yoki yuqorida keltirilgan birikmalr hosilalari deb qaraladi. Agar bu birikmalarning biriga kiritilayotgan o'rinbosar ushbu birikmadagi o'rinbosar bilan bir hil (A-12.1) bo'lsa, lamashingan hosilani *benzen* hosilasi deb qaraladi.

12.3. - O'rinbosarlar raqamlar bilan belgilanadi: agar ikkita o'rinbosar bol'sa 1,2-, 1,3-, 1,4- bolishi yoki *orto*-, *meta*-, *para*- deb ham belgilash mumkin. O'rinbosarlar holati eng kichik raqamlar bilan belgilanishi kerak. A-2 qoida bo'yicha tanlanadi. (A-12.1 qoidada ko'rsatilgan birikmalardan biri tanlangan hollardan tashqari, bunday hollarda esa eng kichik nomerni birikmada oldindan bo'lgan o'qinbosarga beriladi.)

Misol:

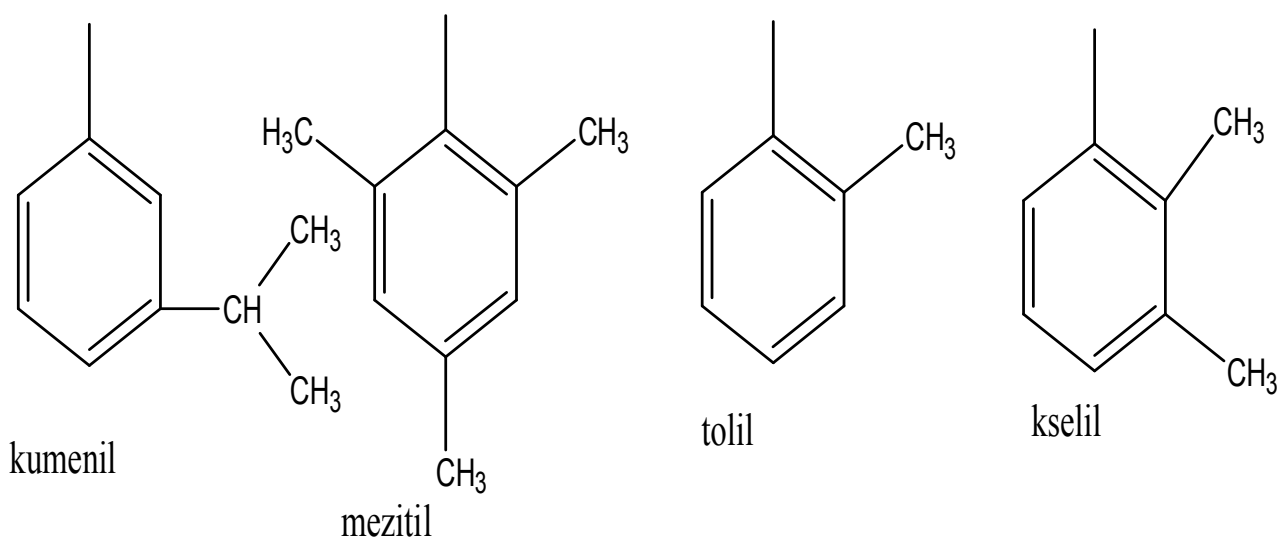


12.4. - Monosiklik va polisiklik aromatik uglevodorodlarning umumiy nomi *arenlardir*.

A-13 qoida

13.1. - Xalqada erkin valentli atomi bo'lgan monosiklik aromatik uglevodorodlarning bir valentli radikallari nomlanishi quyida keltirilgan. Bu ro'yxatda yo'q bo'lgan o'hshash radikallarni almashiningan *fenil* deb qaraladi. Erkin valent uglerod atomi 1 raqamini oladi.

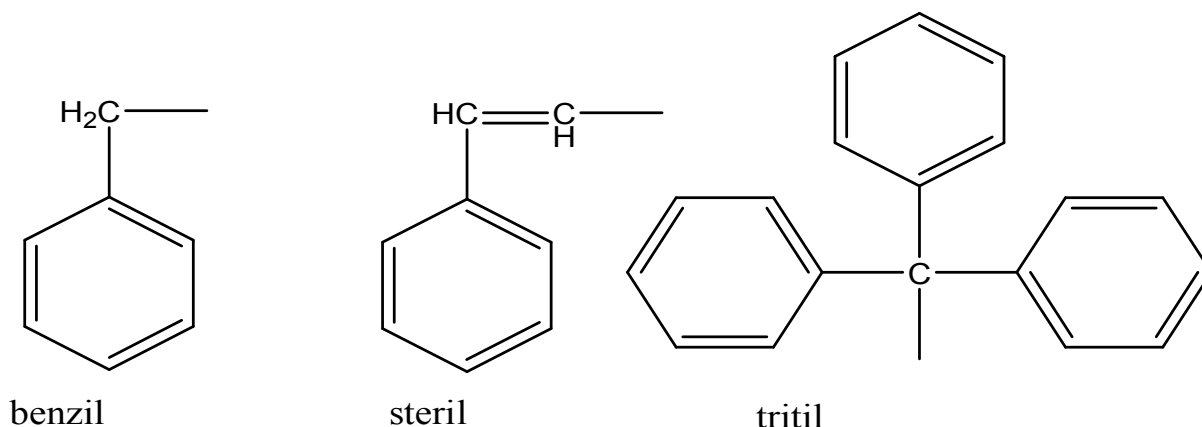
Misol:



13.2. - C_6H_4 radikali uchun fenilen (*orta, meta, para*) nomi saqlanib qolar ekan (A-11.6 qoida uchun chekinish) benzen almashingan hosilalari erkin valentli atomlari xalqaga kirgan bo'lsa huddi almashingan fenilen deb qarashimiz kerak. Erkin valentli uglerod atomlarini tegishlicha *1,2-, 1,3-, yoki 1,4-* deb belgilanadi.

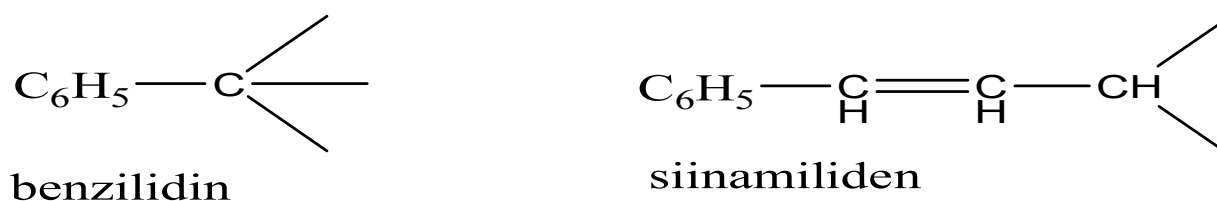
13.3. - Yon zanjirda bitta erkin valentligi bo'lgan radikallar uchun quyidagi trivial nomlar saqlanib qoladi.

Misol:



13.4. - Yon zanjirida erkin valentli uglerod tutgan aromatik uglevodorodlarning ko'p valentli radikallari A-4 qoida bo'yicha nomlanadi.

Misol:



A-14 qoida

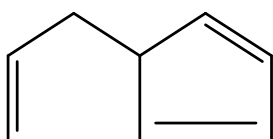
14.1. - Ikki valentli va bir valentli aromatik uglevodorodlar radikallarining umumiy nomi – *arillar* va *arilenlar*.

KONDENSIRLANGAN POLISIKLİK UGLEVODORODLAR

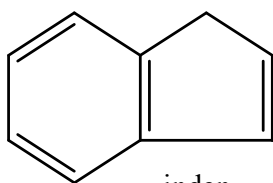
A-21 qoida

21.1. - Maksimal mumkin bo'lgan kumulirlanmagan (yig'ilmagan) qo'sh bog' tutgan polisiklik uglevodorodlar *-en* qo'shimchasi oladilar. Quyida keltirilgan nomlar saqlanib qoladi (1-dan 35- betgacha).

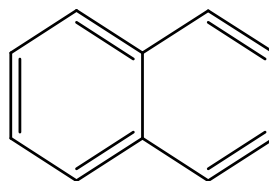
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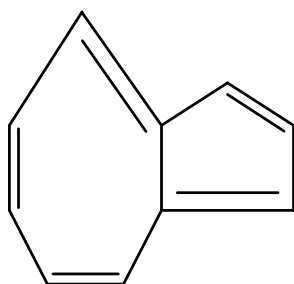
pentalen



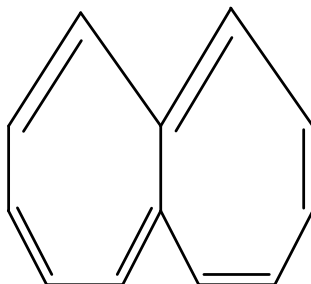
inden



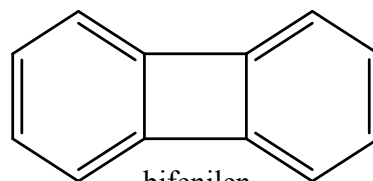
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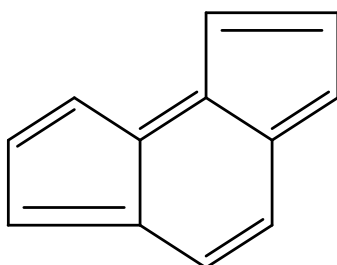
azulen



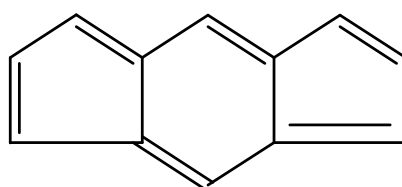
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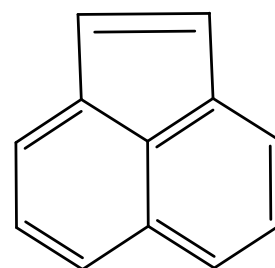
bifenilen



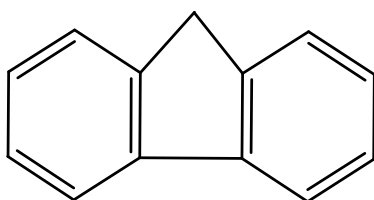
asimm-indasen



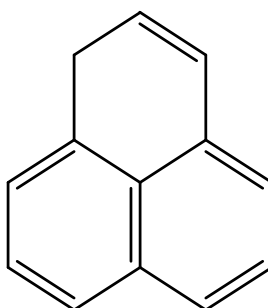
simmm-indasen



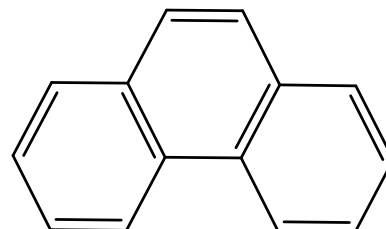
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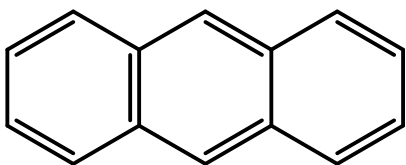
fluoren



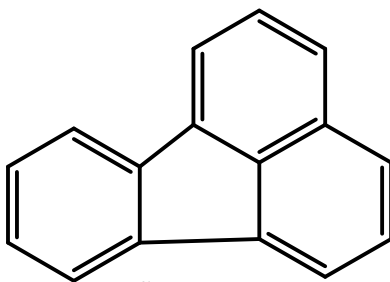
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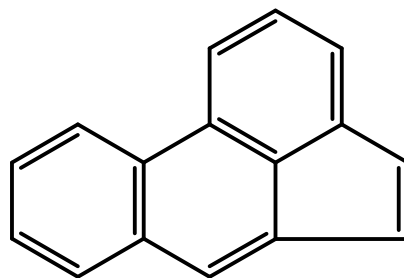
fenaitren



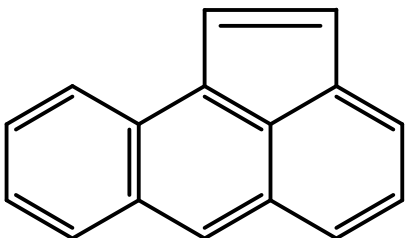
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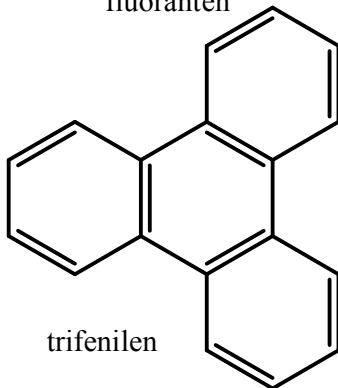
fluoranten



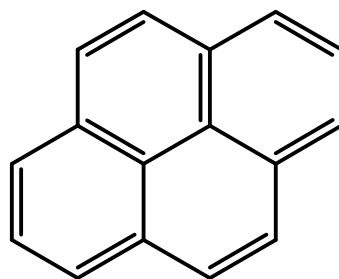
asefenantrilen



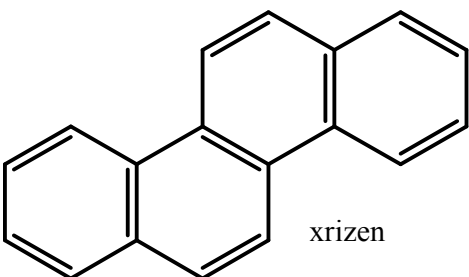
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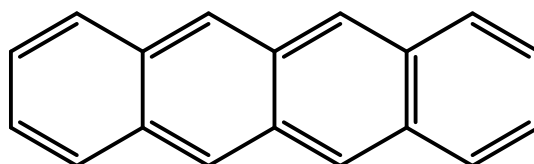
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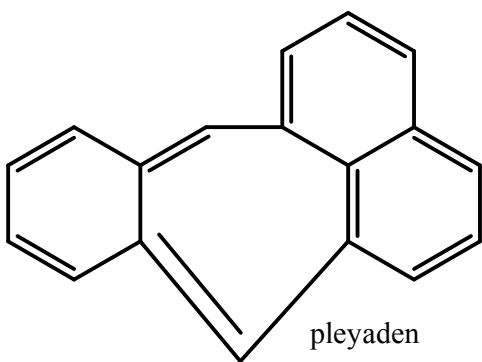
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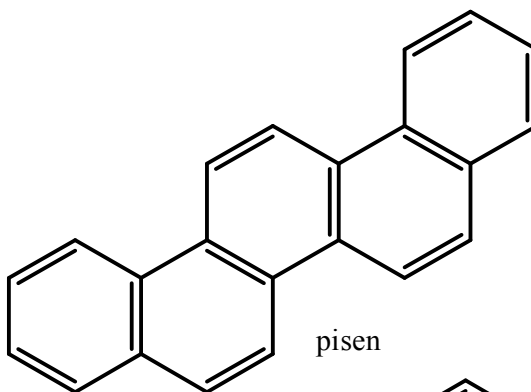
xrizen



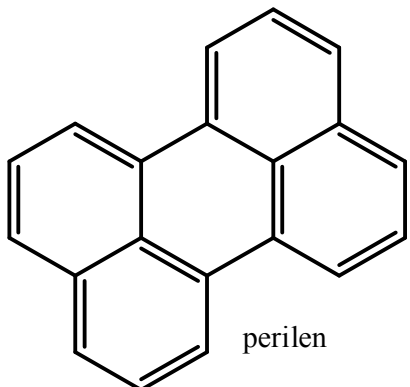
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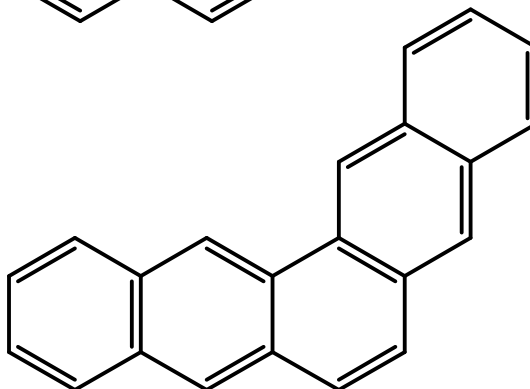
pleyaden



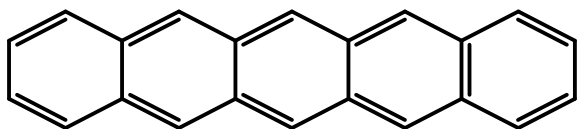
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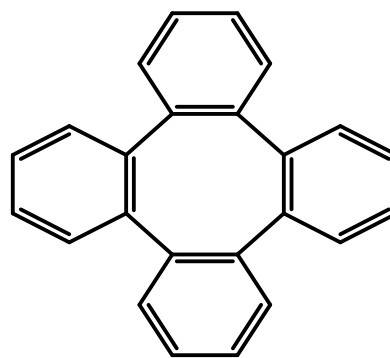
perilen



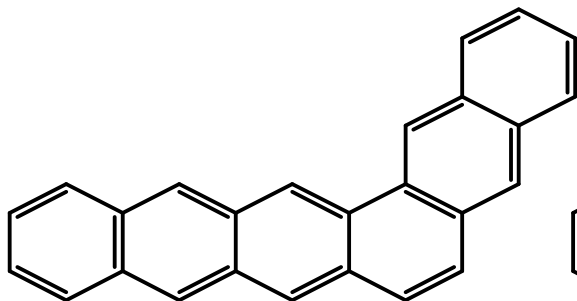
pentafen



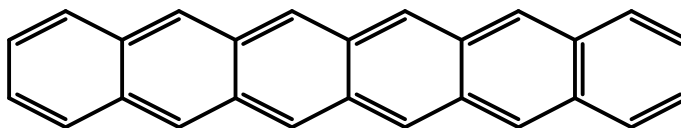
heptasen



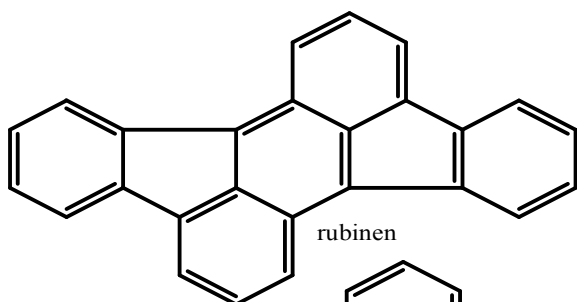
tetrafenilen



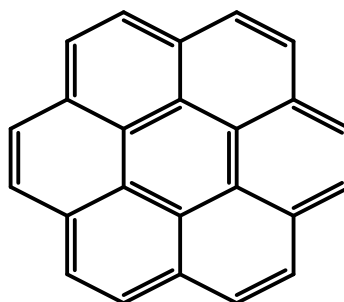
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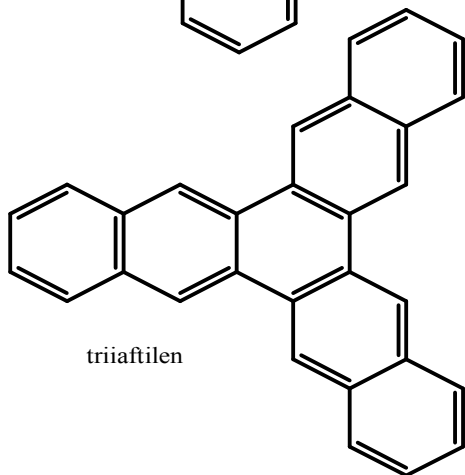
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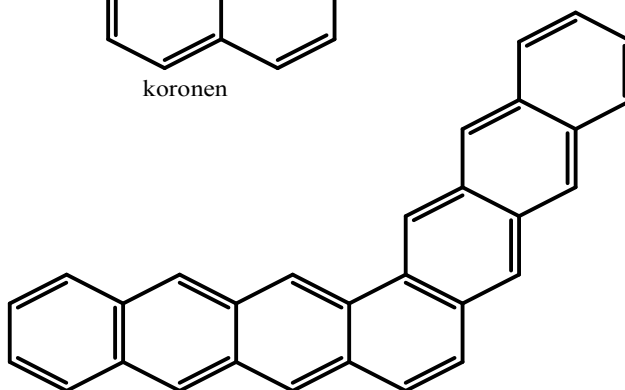
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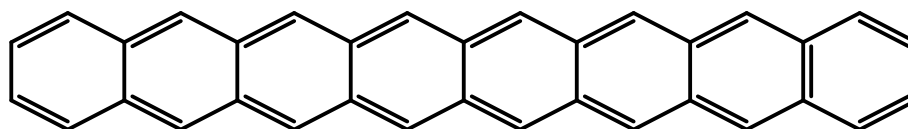
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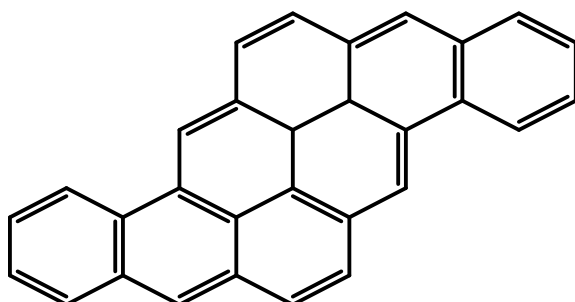
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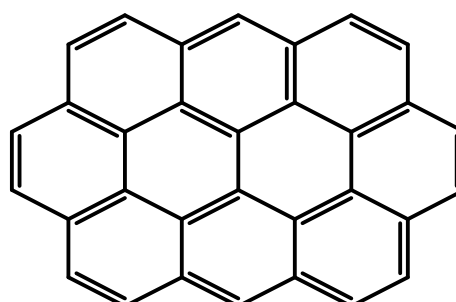
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geptasen



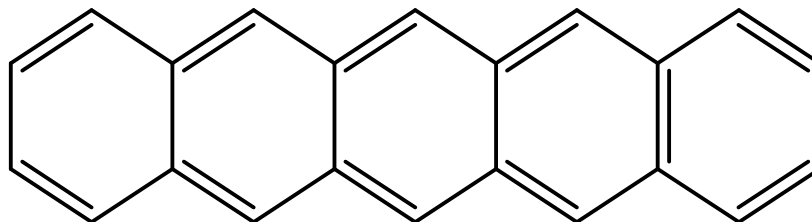
pirantren



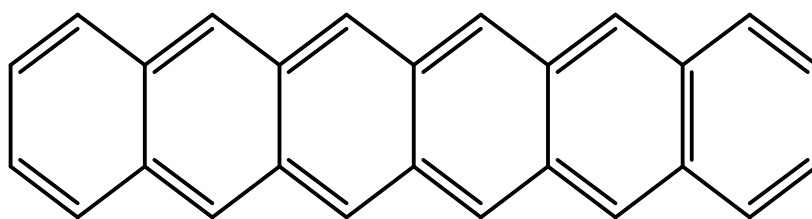
ovalen

21.2. - Besh va undan ortiq chiziqli kondensirlangan benzen xalqali uglevodorodlarning nomi sanoq son asosida va *-atsen* qo'shimchasi qo'shib nomlanadi. (A-1.1 qoida bo'yicha)

Misol:



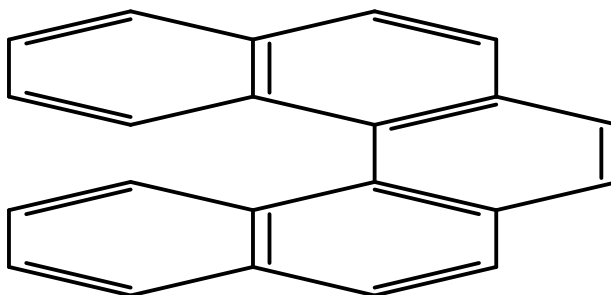
geptasen



geksasen

21.3. – *Orto*- kondensirlangan yoki *orto*- va *para*- kondensirlangan polisiklik uglevodorodlar maksimal kumulirlanmagan qo'sh bog' tutgan va hech bo'lmaganda ikkita besh a'zoli yoki kattaroq xalqa tutgan bo'lsa va A-21.1 qoidaga kirmagan bo'lsalar, ular quyidagicha nomlanadilar: polisiklik birikmaning asosiy tarkibi nomiga (halqa yoki halqa sistemasi asos qilib olingan) boshqa tarkiblarni ifodalovchi (xalqa, asos bilan kondensirlangan) prefikslar qo'shiladi. Asosiy tarkib iloji boricha o'zida ko'p xalqa tutgan bo'lishi kerak va A-21.1 ro'yhatda bo'lib boshlanishdan iloji boricha uzoqroqda bo'lishi kerak. Qo'shilgan tarkiblar iloji boricha sodda bo'lishi lozim.

Misol:



dibenzofenantren

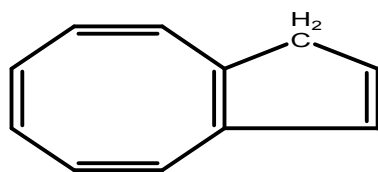
21.4. - Qo'shilgan tarkiblarni ifodalovchi prefikslar tegishli uglevodorodlar ohiridagi *-en* ni *-eno* ga 'almashtirib yasaladi, masalan: *piren* -, *pireno*-. Agar 2 va undan ko'p perefikslar bo'lsa, ularni alfavit tartibida joylashtiriladi. Quyidagi qisqartirilgan prefikslar qabul qilingan:

(A-21.1 ro'yhatga qarang)

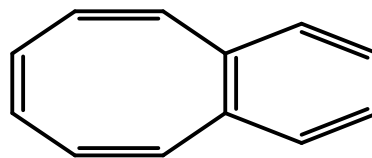
prefikslar-	"enlar"
atsenafta-	atsenaftalen
antra-	antrasen
benzo-	benzen
nafto-	naftalen
perilo-	perilen
fenantro-	fenantren

Monosiklik guruhlar qo'shilganda ularni nomlash uchun benzo- prefiksidan tashqari quyidagicha nomlashlar ham qabul qilingan. Bunda kumulirlanmagan va mumkin bo'lgan maksimal qo'sh bog' belgilanadi: siklopenta-, siklogepta-, siklookta-, siklonona- va hakoza. Agar asosiy tarkib monosiklik sistema bo'lsa, *-en* qo'shimchasi uning tarkibida bitta qo'sh bog' borligini ko'rsatmaydi, balkim kumulirlanmagan qo'sh bog'larning maksimal miqdorini ko'rsatadi.

Misol:



1N-siklopentasiklookten



benzosiklookten

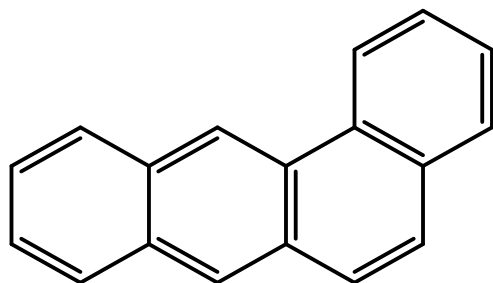
21.5. - Izomerlarni nomlash uchun asosiy tarkibning chetki (periferiy) tomonlarini kichkina a, b, c va hakoza bilan belgilanadi; a - 1, 2 tomon uchun, b - 2, 3 (bazi hollarda - 2, 2) va hakoza. Agar kerak bo'lsa alfavitdagi eng birinchi xarflarga boshqa komponent birikkan tomonni ifodalovchi raqam qo'shiladi, komponent

holatini bildiruvchi nomerni. Bu raqamlar biriktirilgan tarkib nomeratsiyasiga mos kelishi va iloji boricha kichik bo'lishi kerak, ularning tartibi esa – asosiy tarkibni xarfli belgilash yo'nalishi bilan mos kelishi kerak.

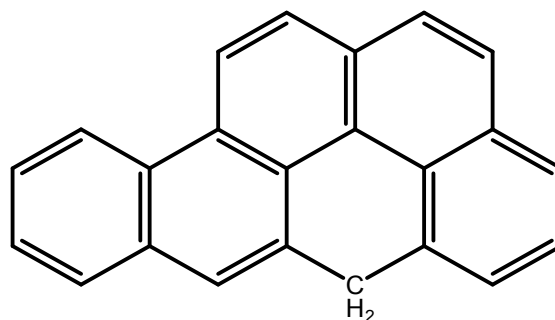
Agar ikki va undan ortiq prefikslar teng uzoqlikda bo'lsa, prefikslarni nomlashda alfavit tartibida A-21.4 qoidaga binoan joylashtiriladi va kiritalayotgan prefikslardan birini o'rni alfavit boshlanishidagi xarflardan biri bilan belgilanadi. (b misolni ko'ring)

Raqam, xarflar qavsga olinadi va biriktirilgan komponent belgilanganidan so'ng darhol qo'yiladi. Bu ko'rinish tarkiblarni birikish usulini belgilaydi.

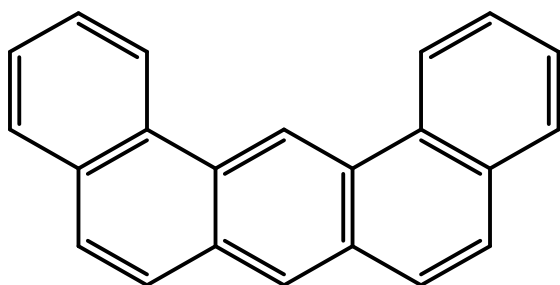
Misol:



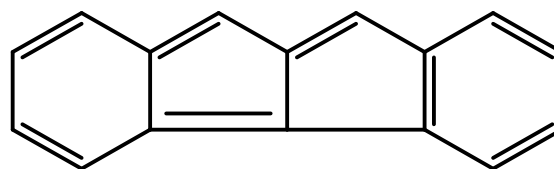
benz[a]antrasen



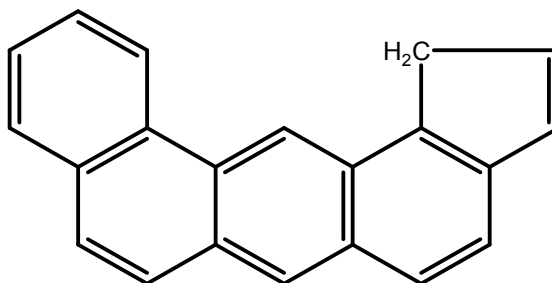
6N-nafto[2,1,8,7,d,e,f,g]naftasen



dibenz[a,j]antrasen
nafpo[2,1-b]fenantren



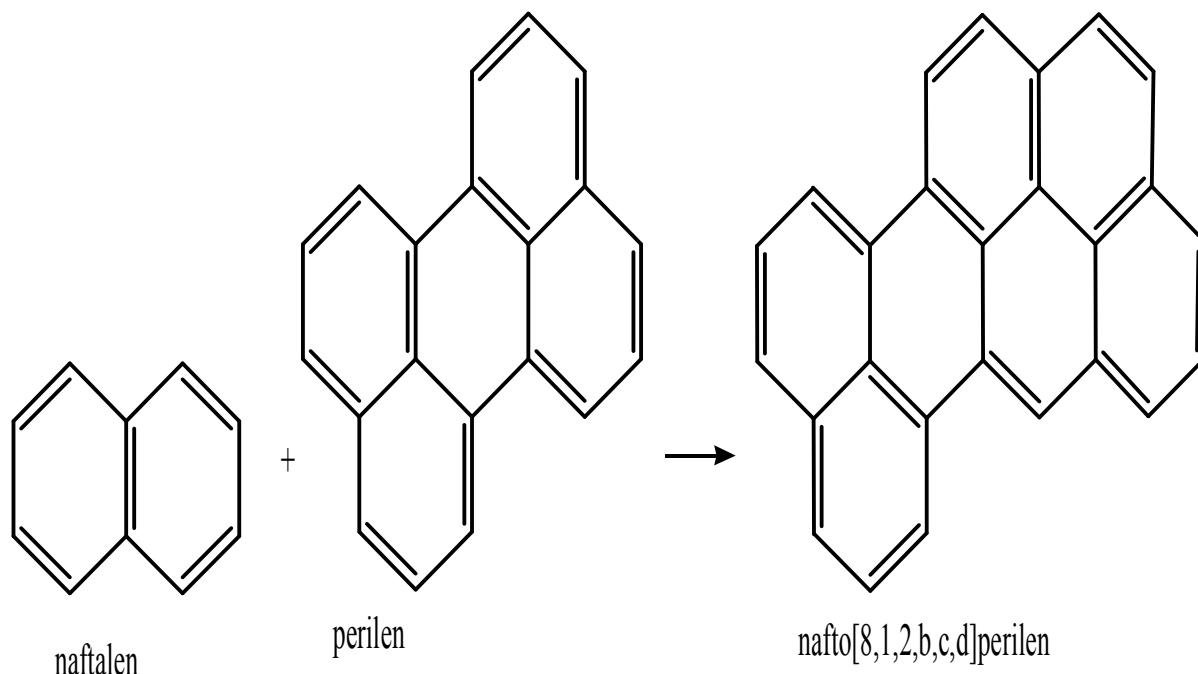
indeno[1,2,a]inden



1Nbenzo[a]siklopent[f]antrasen

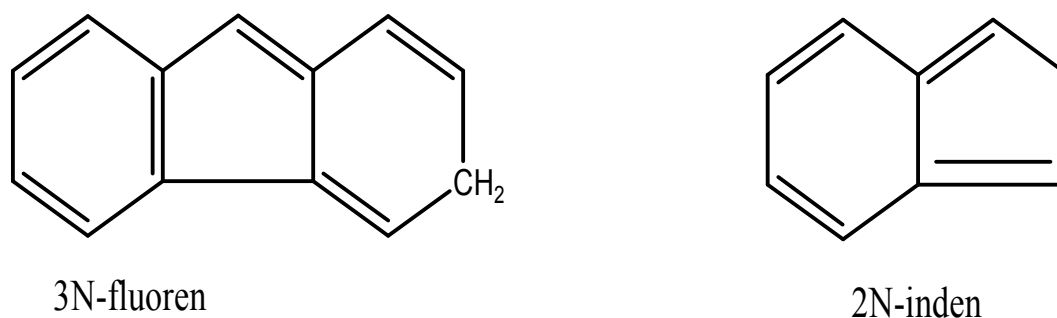
Asosiy va biriktirilgan tarkiblardan tashkil topgan hamma sistemani A-22 qoida bo'yicha nomerlanadi, bunda boshlang'ich komponentlarni nomeratsiyasi etiborga olinmaydi.

Misol:



21.6. - Maksimal kumulirlanmagan, qo'sh bog'tutgan va asosiy xalqa sistemasi ikki va undan ortiq izomerli kondensirlangan bo'lsa birikmani nomlash uchun bir yoki undan ko'p vodorod atomlarini tuzilishda(strukturada) ko'rsatish lozim. Nomlashga "ortiqcha" vodorod atomi holatini ko'rsatuvchi raqam qo'shiladi, raqamdan so'ng bosh xarfda og'gan qilib **H** yoziladi. Bunday usulda yozilgan vodorod atomlari "belgilangan vodorod" deb nomlanadi. Bu prinsip to'liq tutash bo'lmagan sistemalardan olinadigan birikma va radikallarga ham ta'alluqli.

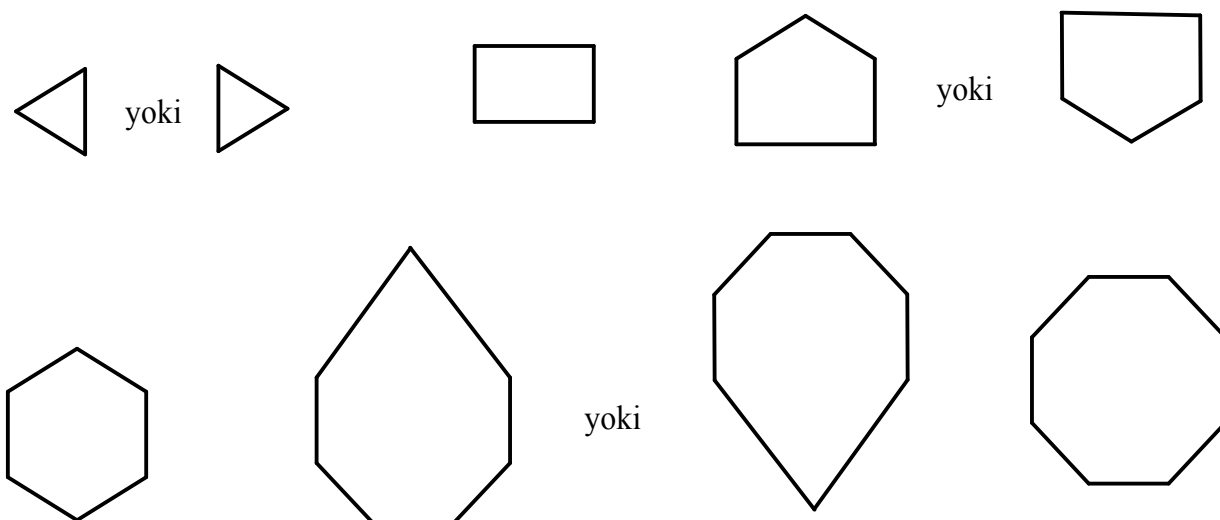
Misol:



A-22 qoidasi

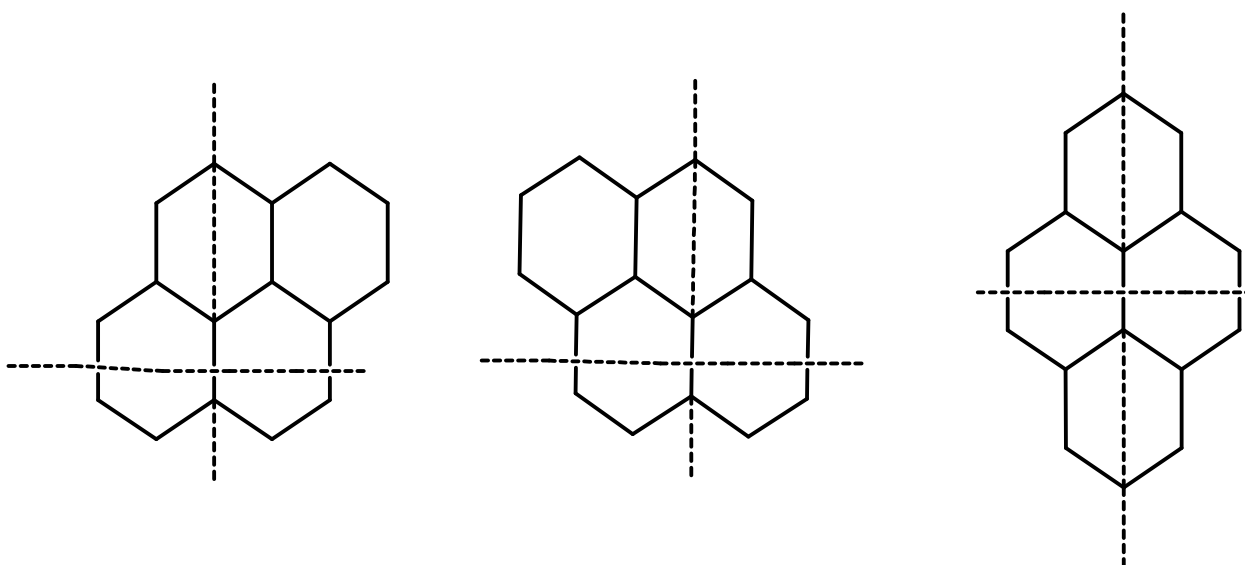
22.1. – Ba’zi bir *orto*- kondensirlangan yoki *orto*- va *peri*- kondensirlangan polisiklik uglevodorod sistemalarning alohida xalqalarini nomerlashni qulaylashtirish maqsadida quyidagich ko’rinishda tasvirlanadi.

Misol:



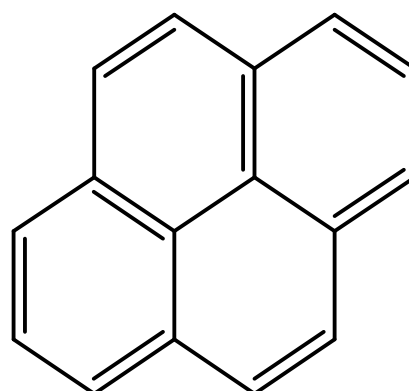
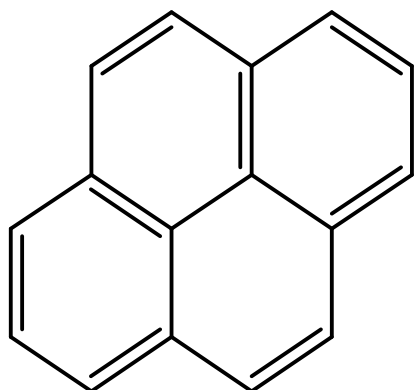
Polisiklik sistemani shunday joylashtiriladiki, (a) - eng ko’p xalqalar gorizontal holda yotgan bo’lsin va (b) - eng ko’p xalqalar miqdori gorizontal qatorga nisbatan yuqori va o’ngda joylashsin (yuqori o’ng sektor). Agar bu shartni ikki va undan ortiq yo’nalish qanoatlantirsa, unda shunday holat tanlanadiki pastki chap sektor iloji boricha kam halqa tutgan bo’lsin.

Misol:



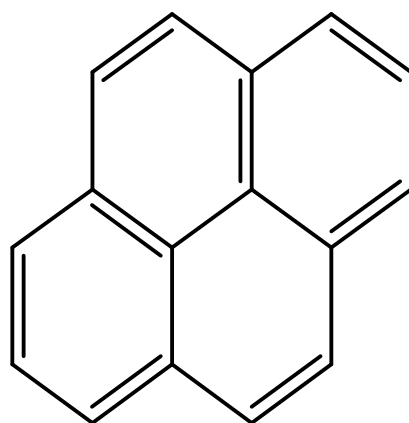
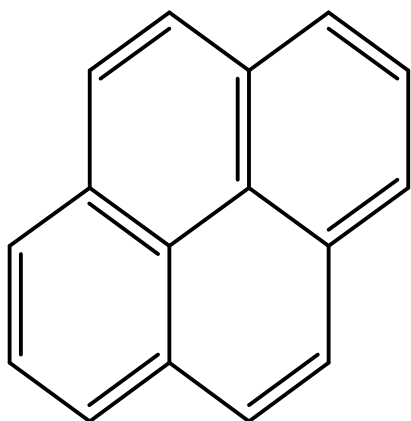
Bunday yo'nalgan sistemani, kondenserlangan xalqalar uchun umumiy bo'lmagan xalqadagi eng yuqori uglerod atomidan boshlangan soat strelkasi harakati bo'yicha nomerlanadi. Agar tanlash mumkun bo'lsa nomerlashni yuqori va o'ng tarafda uzoqda turganidan boshlanadi. Ikki va undan ortiq xalqalarga tegishli umumiy bo'lgan atomlarni nomerlashda tashlab ketiladi.

Misol:



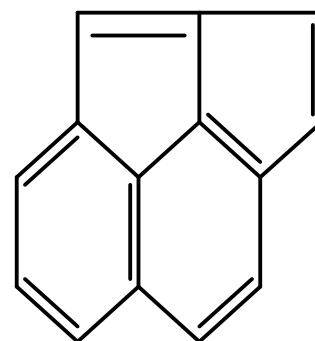
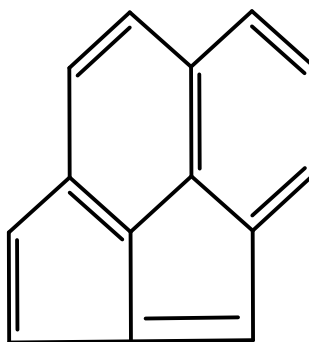
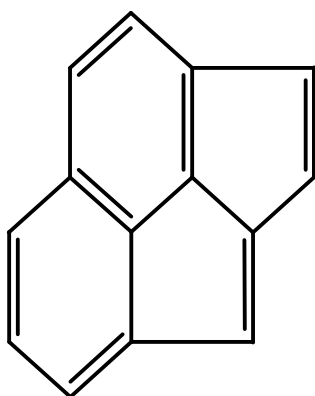
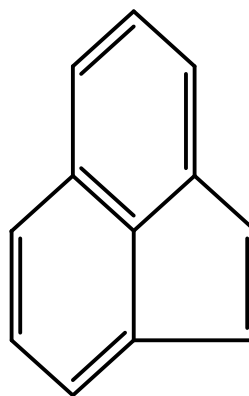
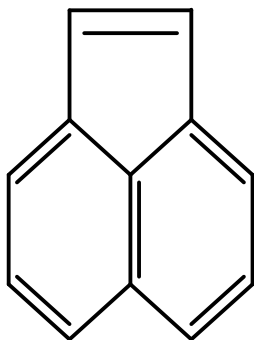
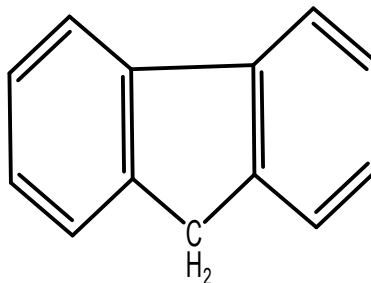
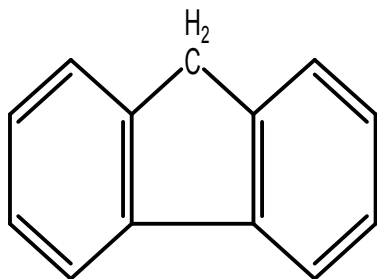
22.2. - Ikki va undan ortiq xalqalarga tegishli atomlar o'zidan oldingi atom nomerini lotin xarflar bilan qo'shib oladi, alfavit tartibida (a, b, c). Agar tanlash mumkun bo'lsa ichki atomlar, soat strelkasi bo'yicha eng katta nomerli atom nomerini olishlari kerak.

Misol:



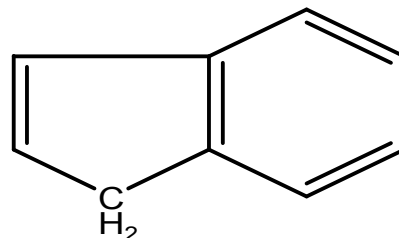
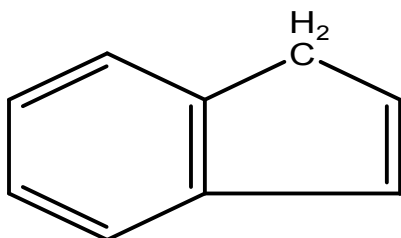
22.3. - Tanlov imkoniyati bo'lsa ikki yoki ko'p xalqalar uchun umum bo'lgan uglerod atomlari eng kichik nomerlar olishlari kerak.

Misol:



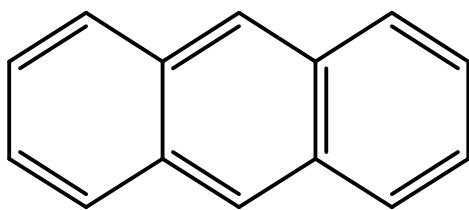
22.4. - Tanlov imkoniyati bo'lsa "belgilangan vodorod" li uglerod atomlari eng kichik nomer olishlari kerak (A-21.6. qoida)

Misol:

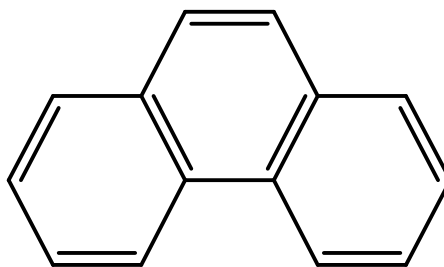


22.5. - Yuqoridagi nomerlash qoidalaridan quyidagi chetlashishlar mavjud.

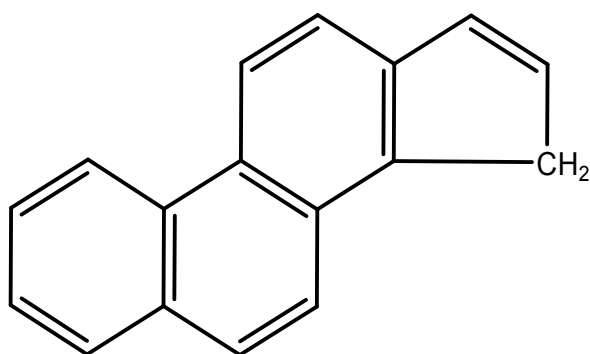
Misol:



antrasen



fenantren

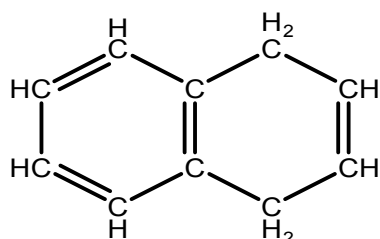


siklopenta[a]fenantren

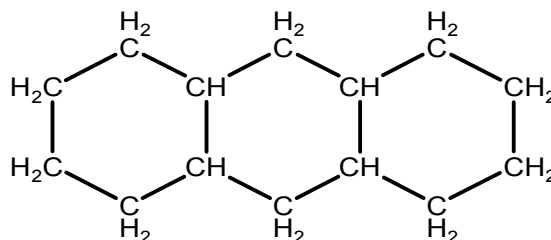
A-23 qoida

23.1. - *Orto*– kondensirlangan yoki *orto*– va *peri*- kondensirlangan polisiklik uglevodorodlarning nomi, kumulirlanmagan qo'sh bog'lar mumkin bo'lgan maksimal holdan kam bo'lsa tegishli qaytarilmagan uglevodorod nomini digidro-, trigidro- old qo'shimchasiga qo'shib yasaladi. *Pergidro*- old qo'shimchasi to'liq gidrogenlanganligini ko'rsatadi. Agar tanlash imkoni bo'lsa **“belgilangan vodorodli”** atom sifatida (A-21.6 qoida bo'yicha) iloji boricha nomeri kichik bo'lgan atom tanlanishi kerak.

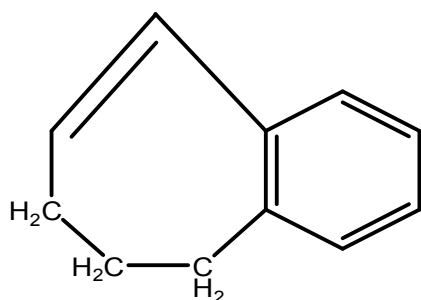
Misol:



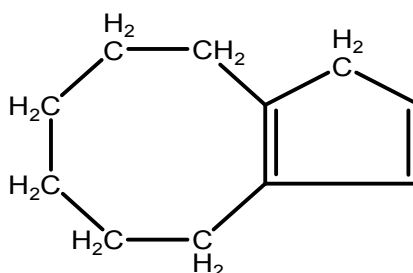
1,4-digidronaftalen



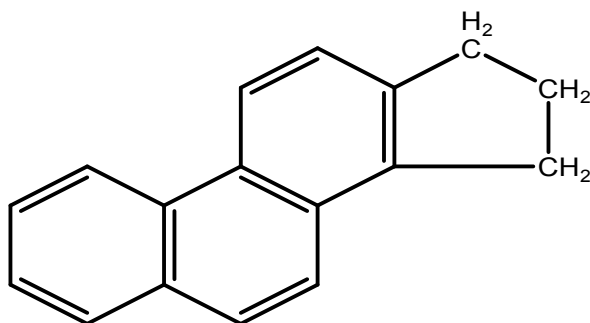
pergidroantrasen



6,7-digidro-5N-benzosiklogepten



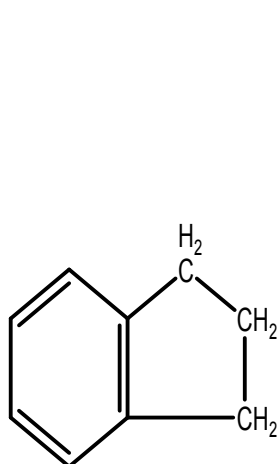
4,5,6,7,8,9-geksagidro-1N-siklopentasilookten



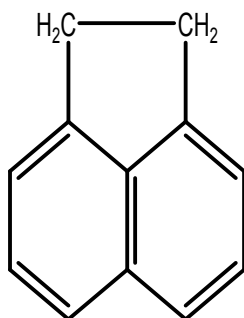
16,17-digidro-15N-siklopenta[a]fenantren

Qoidadan tashqari hol sifatida – quyidagi qisman gidrogenlangan sistemalar nomi saqlanib qolgan:

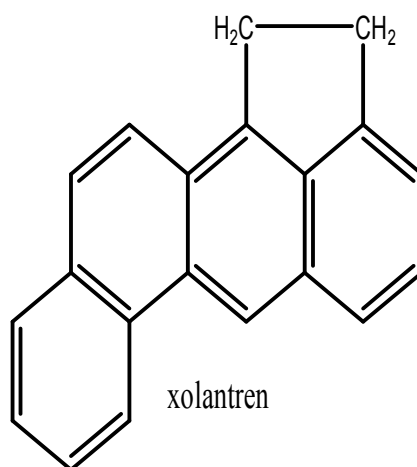
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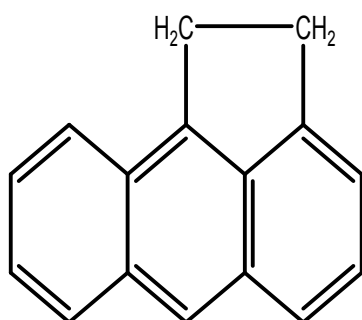
indan



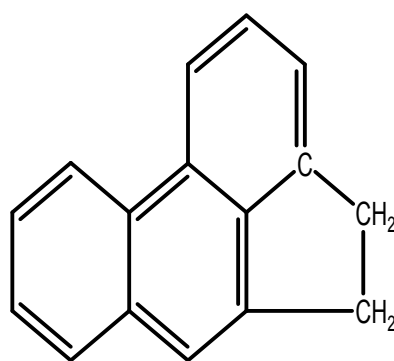
asenaften



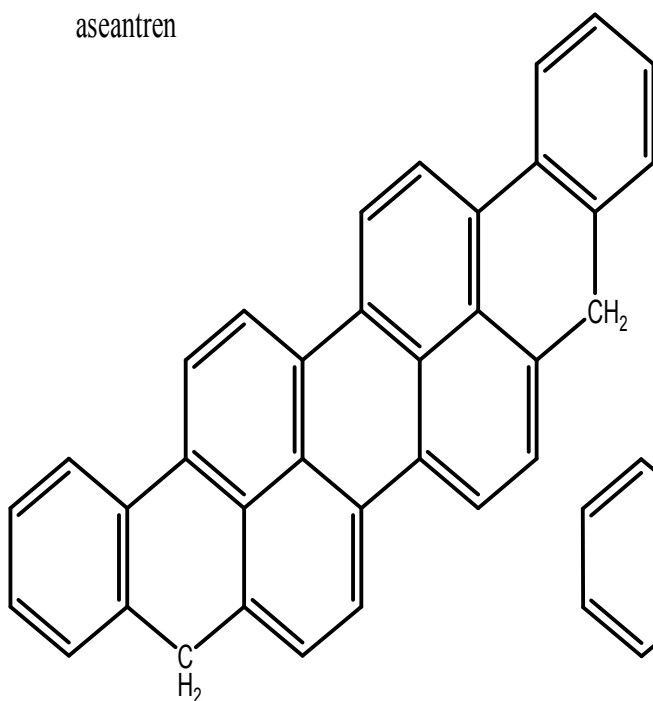
xolantren



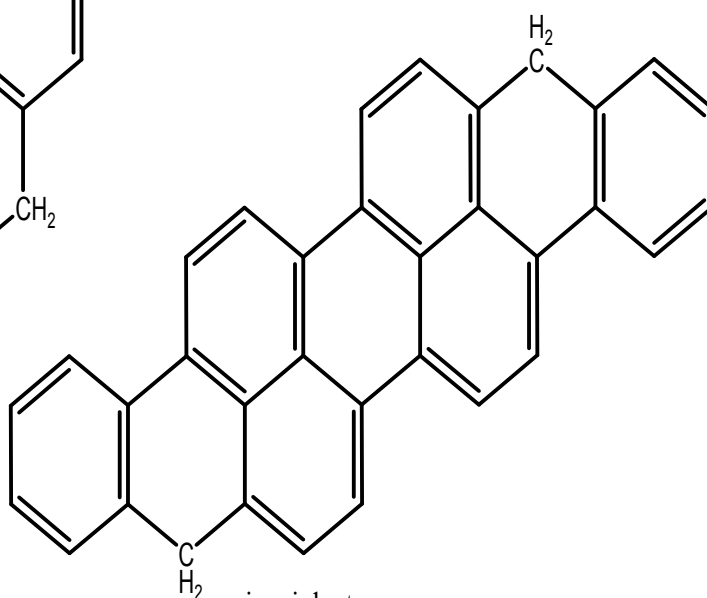
aseantren



asefenantren



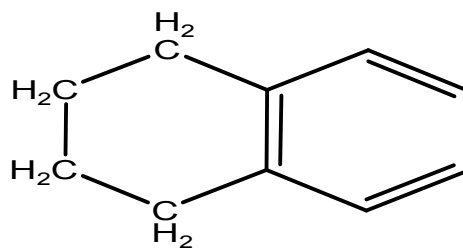
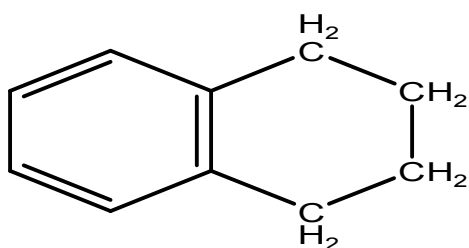
violantren



izoviolantren

23.2. - Agar imkon bo'lsa ko'p vodorod atomi tutgan uglerod atomlari kichik nomerlar bilan belgilanishi lozim.

Misol:

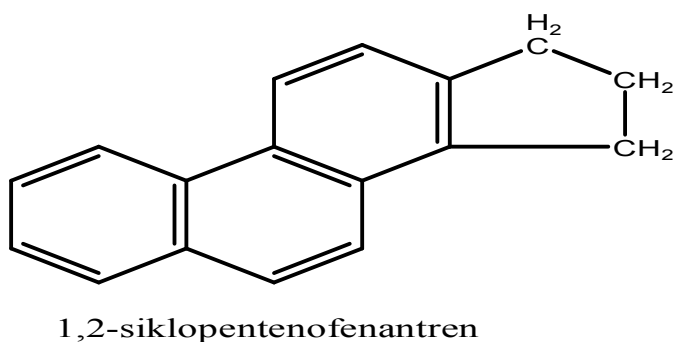
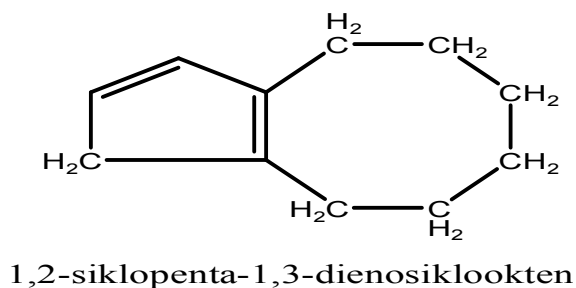
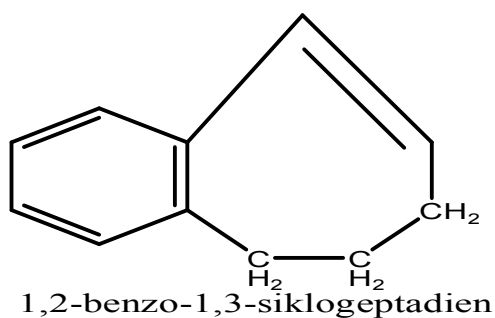


23.3. - Almashingan polisiklik uglevodorodlarni nomlash prinsipi ham almashingan monosiklik uglevodorodlarni nomlash kabidir (A-12 va A-61).

23.5. - (A-23.1. qoida qismining varianti) – *orto*- kondensirlangan polisiklik uglevodorodlar nomi,

(a) - kumulirlanmagan qo'sh bog'lar maksimal bo'lishi mumkinligiga nisbatan kam bo'lsa, (b) - komponentlardan birini sikloalkanni to'yinmagan hosilasi deb qarash mumkin bo'lsa va (c) - halqalar tutashgan joyda qo'sh bog' bo'lsa asosiy komponent nomiga "o" bog'lovchisi bilan boshqa component nomi qo'shib yasaladi. A-21.4. qoidada qabul qilingan, kondensirlangan aromatik sistemalar uchun qisqartirishlar bu hollarda ham qo'llaniladi, A-23.1. qoidada ko'rsatilgan mustasno hollarga o'hshab.

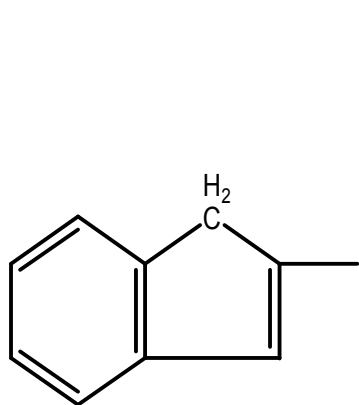
Misol:



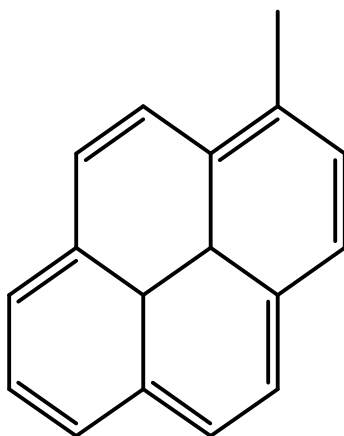
24.1. - Polisiklik uglevodorodlardan hosil bo'lgan radikallarda ham uglevodorodlardagidek nomerlash saqlanib qoladi. Birikish nuqtasi yoki nuqtalari tegishli nomerlashdagi raqamlar bilan belgilanadi.

24.2. – *Orto*- kondensirlangan yoki *orto*- va *peri*- kondensirlangan polisiklik uglevodorodlarning (-en ga tugagan nomi), aromatik yoki alisiklik halqadan vodorodni olish orqali hosil bo'lgan bir valentli radikallari –en qo'shimchasini -enil qo'shimchasiga almashtirish orqali nomlanadi.

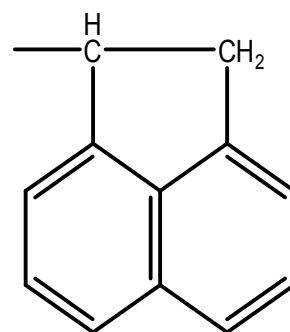
Misol:



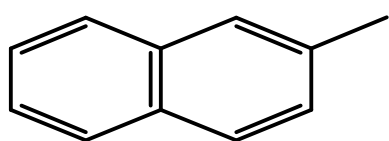
2-indenil



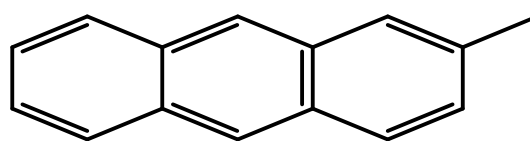
1-pirenil



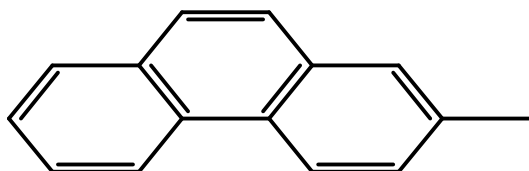
1-asenaftel



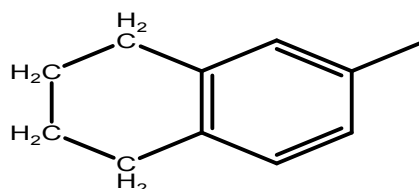
naftil



antril



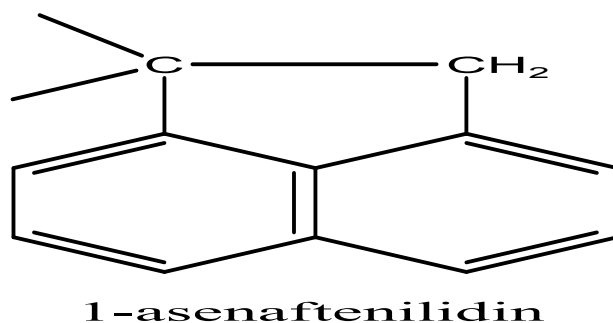
fenantril



5,6,7,8-tetragidro-2-naftil

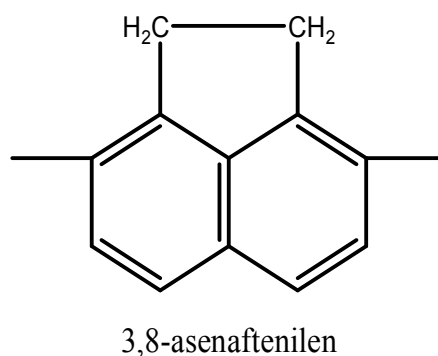
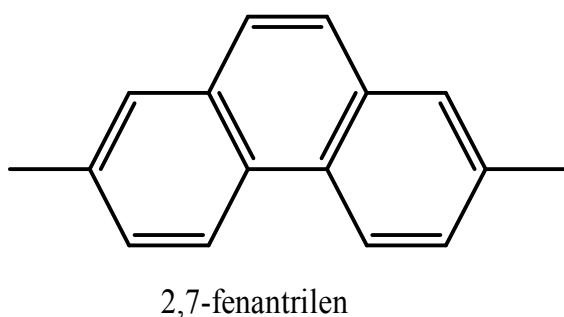
24.3. - Erkin valentli uglerod atomidan, bir valentli radikallardan, vodorodni tortib olib hosil qilingan ikki valentli radikallar tegishli bir valentli radikal qo'shimchasi –il ni –iden ga aylantirid yasaladi.

Misol:



24.4. – *Orto*- kondensirlangan yoki *orto*- va *peri*- kondensirlangan polisiklik uglevodorodlari halqasidagi ikkita turli uglerod atomlaridan vodorodni tortib olib hosil qilingan ikki valentli radikallar nomi bir valentli radikal nomidagi *–il* qo'shimchasini *–ilenga* almashtirib yasaladi.

Misol:



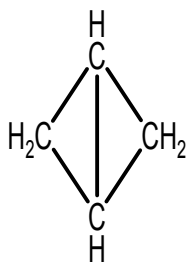
28.1. - Polisiklik sistemalar va yon zanjirlar tutgan uglevodorodlardan hosil qilingan radikallar oldin sanab o'tilgan qoidalar asosida nomlanadi.

KO'PRIKCHALI UGLEVODORODLAR

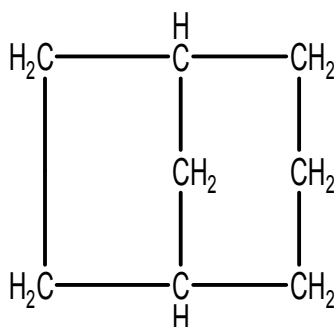
Bayer sistemasi bo'yicha A-31 qoidasi

31.1. - Faqat 2 ta halqadan tashkil topgan, 2 yoki ko'p umumiy atom tutgan to'yingan alisiklik uglevodorod sistemasi nomi, shu miqdorda uglerod tutgan ochiq zanjirli uglevodorod nomiga *bisiklo-* prefiksini qo'shib yasaladi. Ikkita uchlamchi uglerod atomini tutgan uchta ko'prikladagi uglerod atomlari soni [] ichida kamayish tartibida yoziladi.

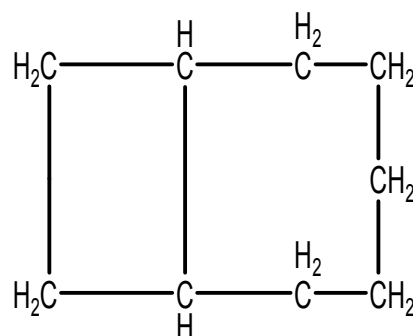
Misol:



bisiklo[1,1,0]butan



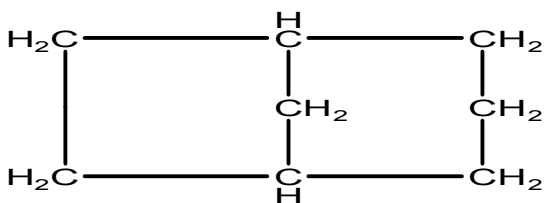
bisiklo[3,2,1]oktan



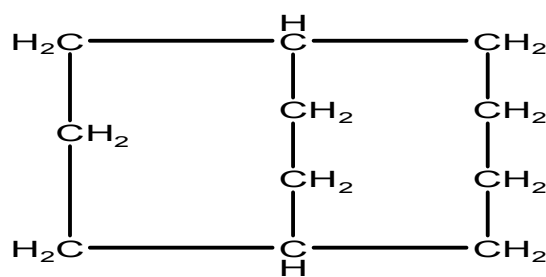
bisiklo[4,3,2]nonan

31.2. - Sistemani quydagicha no'merlanadi: birinchi tugundagi atomdan boshlanib eng uzun yo'l bilan ikkinchi tugun atomiga, so'ng qolgan yo'llarning eng uzuni bilan birinchi tugun atomiga kelinadi, so'ngra eng qisqa yo'l bilan tugatiladi.

Misol:



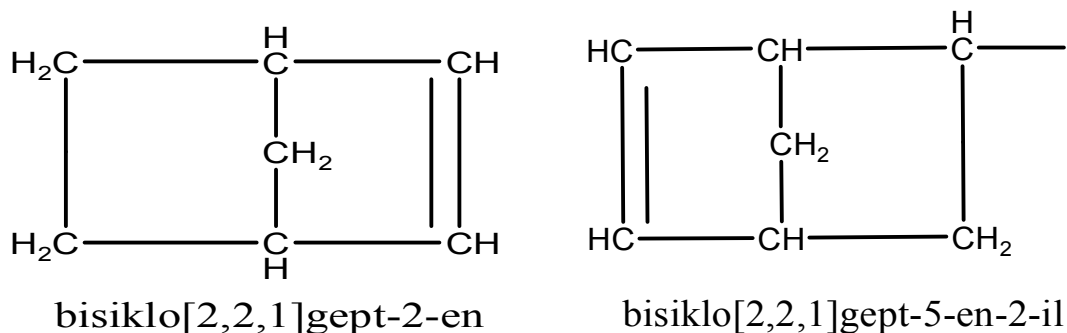
bisiklo[3,2,1]oktan



bisiklo[4,3,2]undekan

31.4. - Ko'prikkali uglevodorodlardan olingan radikallarni A-11.4 qoida bo'yicha nomlanadi. Uglevodorodlar no'mtrlanishi saqlanadi, bog'lanish () lariga uglevodorod nomerlanishiga mos ravishda iloji boricha eng kichik nomerlar beriladi.

Misol:



A-32 qoida

32.11. - Uch va undan ortiq halqalar tutgan siklik uglevodorodlar sistemasi A-31 qoidada ko'rsatilgan prinsiplar asosida nomlanishi mumkin. Bisiklo- prefiksi o'rniga tegishli trisiklo-, tetrasiklo- va hakoza prefikslar qo'yiladi

32.21. - Bisiklik sistemani hosil qiluvchi asosiy halqa va asosiy ko'prikchani A-31 qoida bo'yicha nomlanadi.

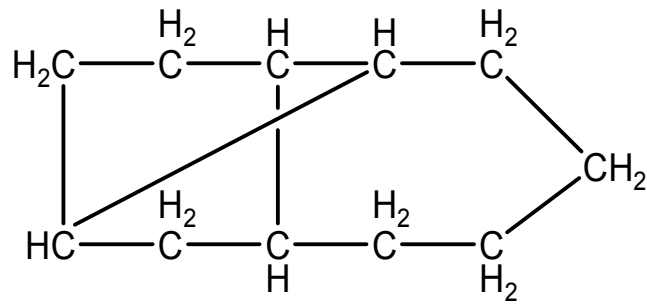
32.23. - Ikkilamchi ko'prikchalar kamayib borish tartibida nomerlanadi. Har qanday ko'prikchani nomlashni eng katta nomer bilan nomerlangan qisim, bo'lak tomondan boshlanadi.

32.22. - Birlamchi ko'prikchalarni joylashgan o'rni, ko'prikcha tarkibidagi uglerod sonlarini ko'rsatadigan raqamlarda ko'rsatkich bilan belgilanadi.

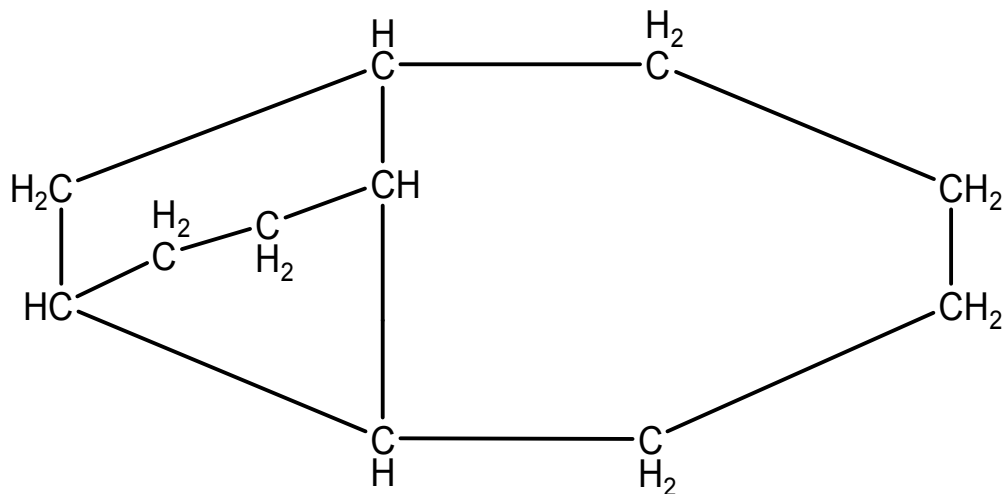
32.31. - Agar tanlash imkoni bo'lsa nomerlash tartibini quyidagi ko'rsatkichlar asosida aniqlanadi:

a) Asosiy halqa iloji boricha eng ko'p uglerod tutgan bo'lishi va ulardan ikkitasi asosiy ko'prikning bog'lovchi (tugun) atomlari bo'lishi shart.

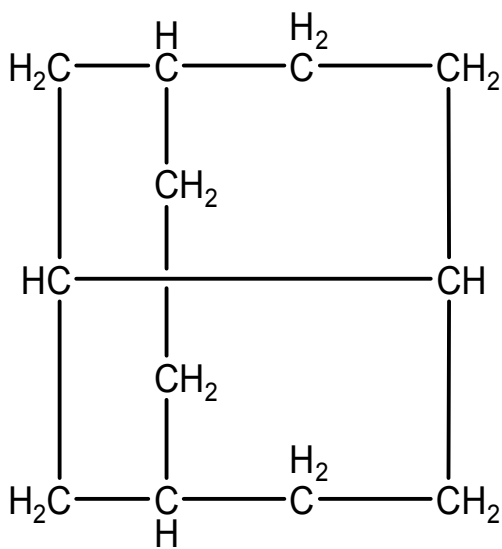
Misol:



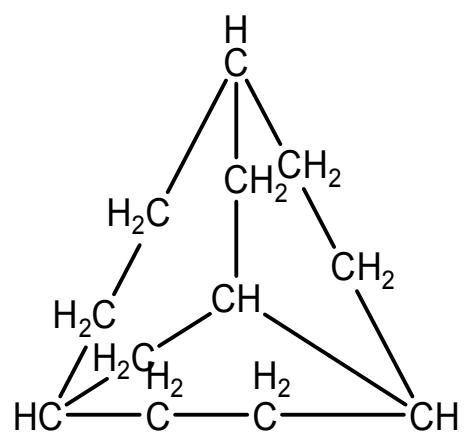
trisiklo[5,4,0,0^{2,9}]undekan



trisiklo[4,2,1,2^{7,9}]undekan



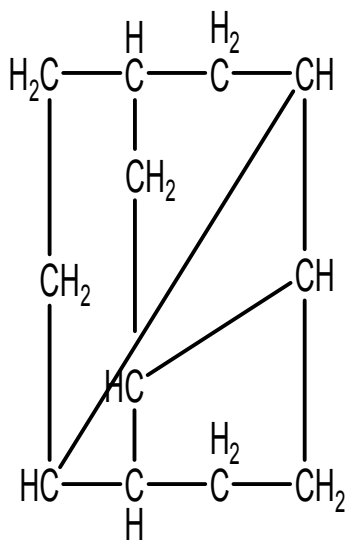
trisiklo[5,3,2,0^{4,9}]dodekan



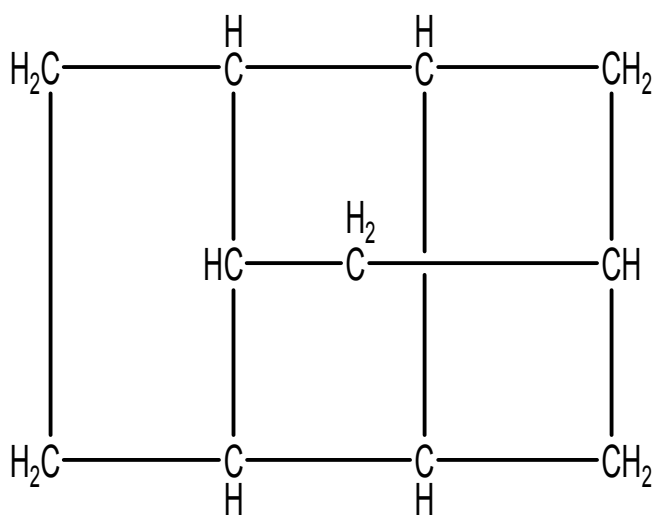
trisiklo[5,2,3,0^{4,11}]dodekan

b) Asosiy ko'prik iloji boricha katta bo'lishi kerak.

Misol:



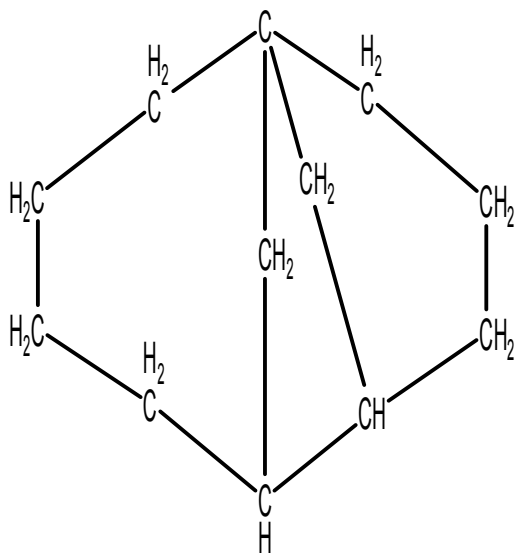
tetrasiklo[5,2,2,0^{3,8},0^{4,11}]undekan



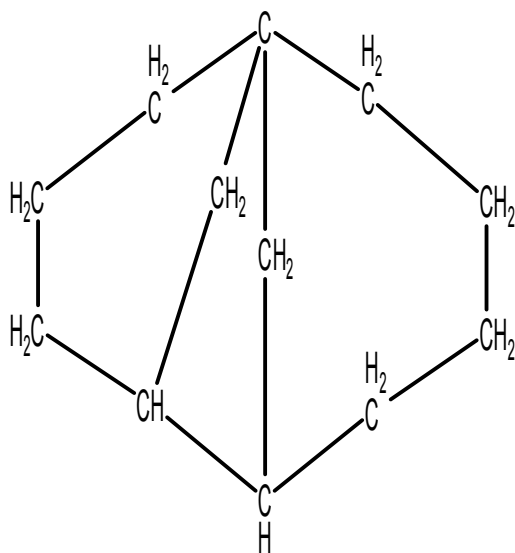
tetrasiklo[5,2,1,1^{4,10},0^{2,6}]undekan

c) Asosiy halqa asosiy ko'prikcha bilan iloji boricha simmertikroq bo'lingan bo'lishi shart .

Misol:



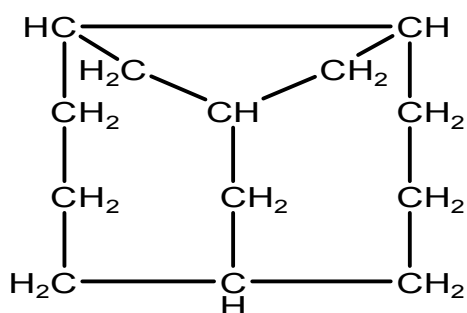
trisiklo[4,4,1,1^{1,5}]dodekan



trisiklo[5,3,1,1^{1,6}]dodekan

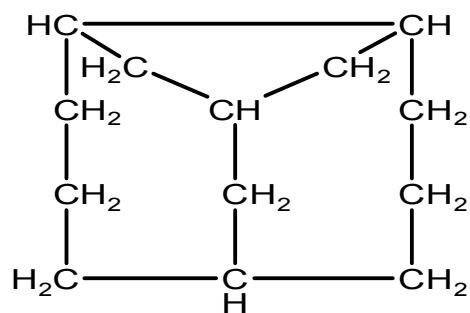
d) Boshqa ko'prikchalar holatini ko'rsatuvchi raqam ko'rsatkichlar iloji boricha kichik bo'lishi kerak. (A-32.22 qoidaga o'hshab)

Misol:



trisiklo[5,5,1,0^{3,11}]trideka

To'g'ri nomlangan



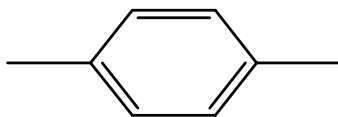
trisiklo[5,5,1,0^{5,9}]trideka

Noto'g'ri nomlangan

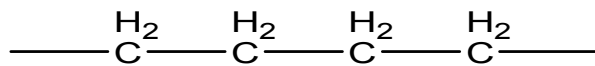
A-34 qoida (A-35 qoidaga alternativ)

34.1. - A-21 qoidaga ko'ra *orto*- kondensirlangan yoki *orto*- va *peri*- kondensirlangan va o'rinbosar sifatida qaralishi mumkin bo'lgan boshqa ko'prikchalar tutgan polisiklik uglevodorod sistemalarni nomlash uchun, asos sifatida *orto*- yoki *orto*- va *peri*- kondensirlangan sistemani asos qilib olib nomlash mumkin. Qo'shimcha ko'prikcha o'rinbosarlarni tegishli uglevodorodlardagi *-an*, *-en*, *-in...* larni *-ano*, *-eno*, *-ino* larga almashtirilgan prefikslar bilan begilanadi; ko'prikchalar holati, asosiy sistemaga, bog'lanish nuqtalari nomlari orqali ko'rsatiladi. Agar turli tiplardagi ko'prikchalar bo'lsa ularni alfavit tartibida sanab o'tiladi. Ko'prikchalarni nomlashdan misollar.

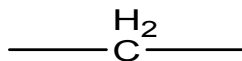
benzino



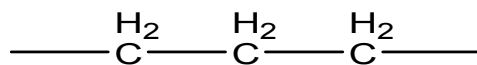
butano



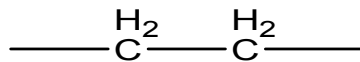
metano



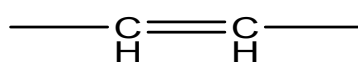
prapano



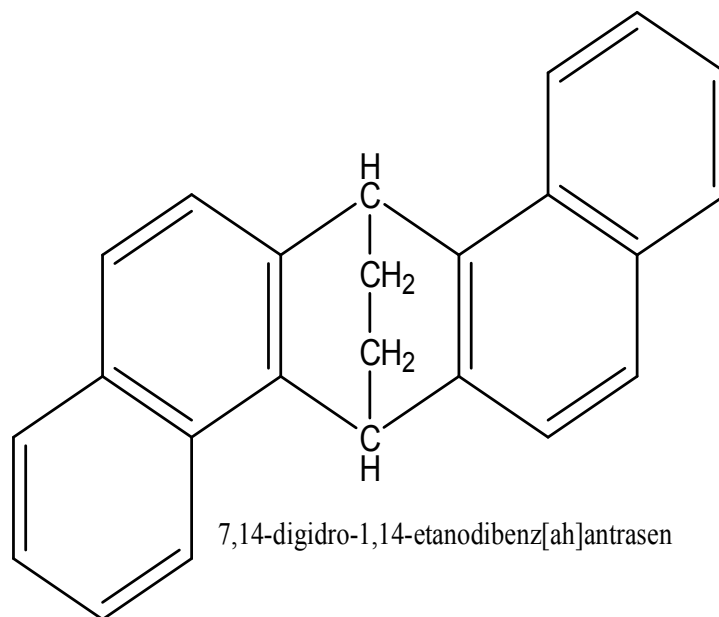
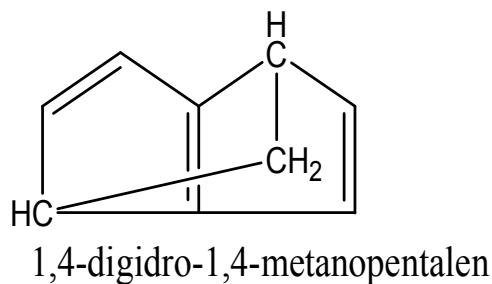
etano



eteno

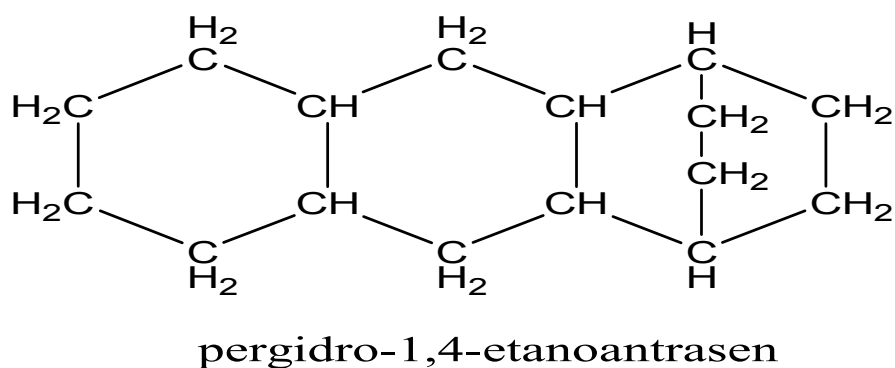


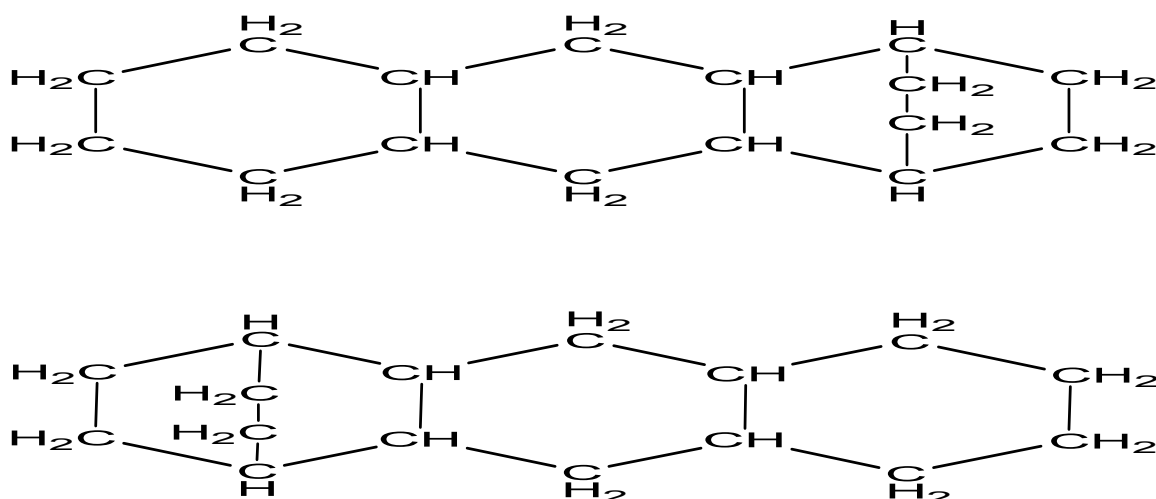
Misol:



34.2. - Asosiy *orto*- yoki *orto*- va *peri*- kondensirlangan sistemani A-22 qoida bo'yicha nomerlanadi. Agar tanlash imkoni bo'lsa ko'prikchanning tugunidagi atomlari iloji boricha kichik nomerlar bilan belgilanishi kerak. Ko'prikchalarni esa har safar eng katta nomerli qisimga yaqin turgan ko'prikcha atomidan boshlab navbat bilan nomerlanadi.

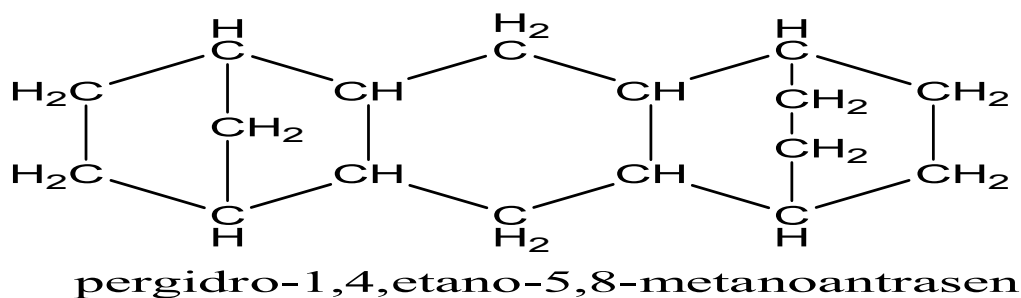
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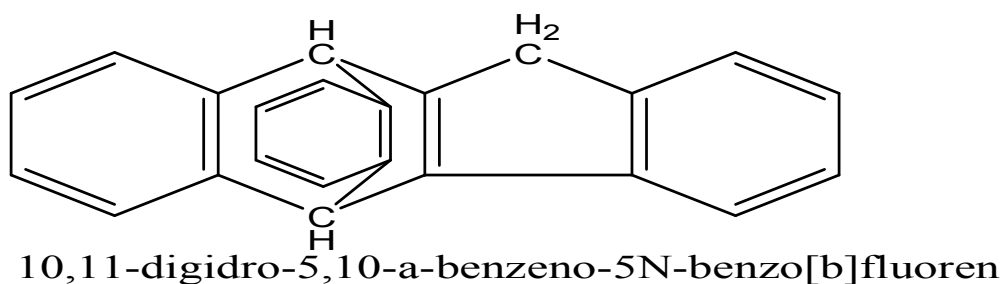
34.3. - Agar asosiy struktura, nomerlashni boshlanishi va yo'nalishini tanlashga imkon bersa, eng kichik nomerlarni ko'priklariga berib qanday tartibda sanalayotgan bo'lsa, ko'priklar qismlariga shu tartibda berilishi kerak, ko'priklarni hosil qilayotgan atomlar oldingi qoida bo'yicha nomerlanadi.

Misol;



34.4. - Agar ko'pricha ikki valentli siklik uglevodorod radikalidan hosil qilingan bo'lsa kichik nomerlar shunday uglerod atomlariga berilishi kerakki ular asosiy struktura atomlari orasida eng qisqa yo'lni tashkil etsinlar, shundan keyin nomerlashni halqa bo'ylab davom ettiriladi.

Misol:

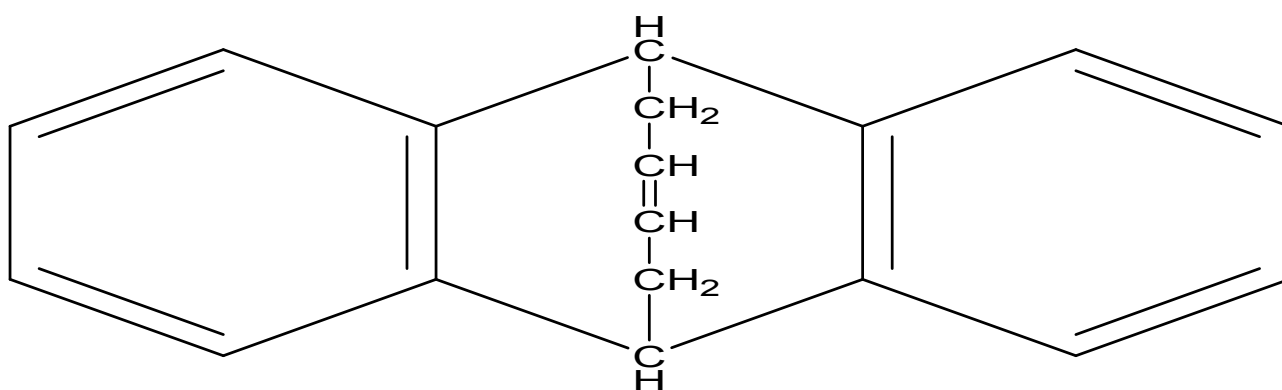


A-35 qoida (A-34 qoidaga alternativa)

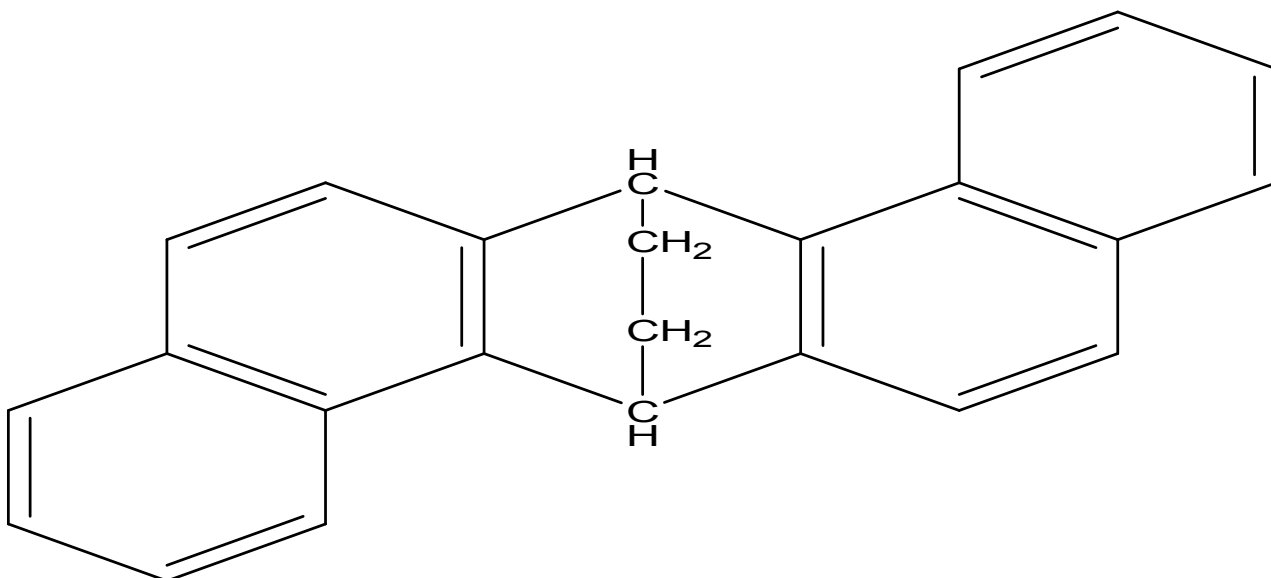
35.1. - A-21 qoida bo'yicha *orto*- yoki *orto*- va *peri*- kondensirlangan polisiklik uglevodorodlar boshqa ko'priklar tutgan bo'lsalar, ular almashingan ikki valentli radikalli *orto*- yoki *orto*- va *peri*- kondensirlangan sistemalar deb nomlanishi mumkin.

35.2. 5. - 35.1. qoida bo'yicha birikmalarni nomerlanadi, A-34 qoida talabiga ko'ra. Kichik nomerli qismdan boshlab ko'priklar mustaqil nomerlanadi. Ko'priklar atomlarini nomerlari shtrihlar bilan belgilanadi.

Misol:



9,10-digidro-9,10-(2-butenilen)antrasen



7,14-digidro-1,14-etikendibenz[a,h]antrasen

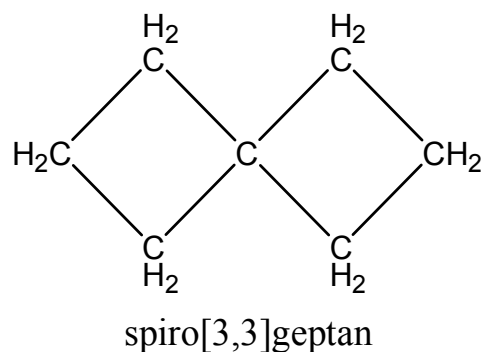
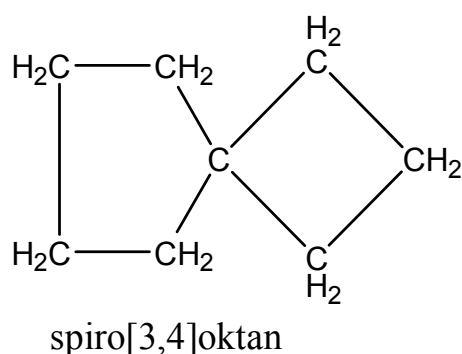
SPIROUGLEVODORODLAR

Ikkita halqaning yagona umumiy a'zosi bo'lgan atom **spiro** bog' hosil qiladi. Agar ikkita halqa birlashishi bitta bog' orqali bo'lsa, bu bog'ni **ozod spiro bog'** deb ataladi. Umumiy atom **spiroatom** deb yuritiladi. Spiroatomlar miqdoriga qarad *monospiro-*, *despiro-*, *trispiro-* va h.k.z.ga farqlanadi. Quyida ozod *spiro-* bog'li nomenklatura qoidalari keltirilgan.

A-41 qoida (A-42 qoidaga alternativa)

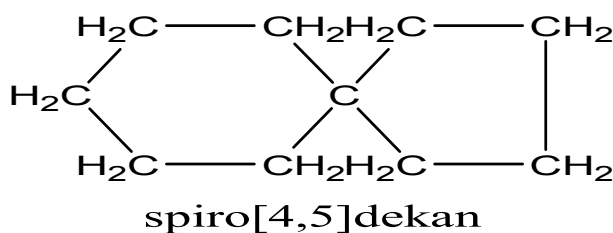
41.1. - Monospiro birikmalarni, tarkibi ikkita alisiklik halqadan tashkil topgan, shuncha uglerod atomi tutgan normal alisiklik uglevodorod nomiga *spiro-* prefiksini qo'shib nomlanadi. Spiro atom bilan birikkan har bir halqadagi uglerod atomlari soni ortishi tartibida *spiro-* va uglevodorod nomi oralig'iga [] da joylashtiriladi.

Misol:



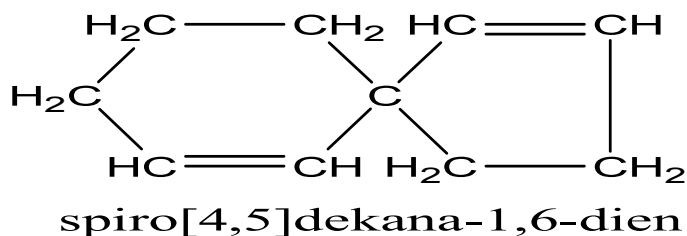
41.2. - Monospiro uglevodorodlardagi uglerod atomlari quyidagicha nomerlanadi, spiroatomga yaqin bo'lgan atomdan boshlab avval kichik halqa bo'yicha (agar u bo'lsa) va spiroatomni nomerlaydi, so'ngra ikki halqa bo'ylab nomerlaydi.

Misol:



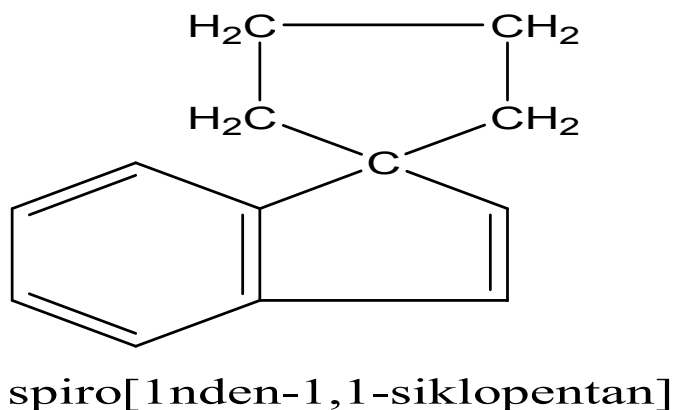
41.3. - To'yinmagan bog'lar ham bo'lsa nomerlash prinsipi saqlanib qoladi, faqat halqalarda shunday qilidiki qo'sh bog' va uch bog'lar A-11 qoida bo'yicha iloji boricha eng kichik nomer olinsinlar.

Misol:



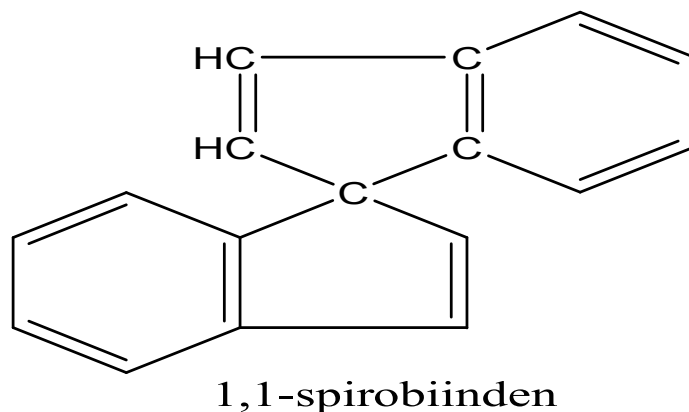
41.4. - Agar monospiro birikmani bir yoki ikkala komponenti ham kondesirlangan polisiklik birikmalar bo'lsa, alfavit tartibida komponent nomlari joylashgan [] lardan oldin *spiro-* prefiksi qo'shiladi. Iloji boricha spiroatom eng kichik nomer olishi kerak, tartib bo'yicha ikkinchi bo'lgan komponent atomlari shtrix bilan belgilanadi. Har bir komponentdagi spiroatom holati tegishli nomerlar ko'rsatiladi va komponentlar nomi orasiga qo'yiladi.

Misol:



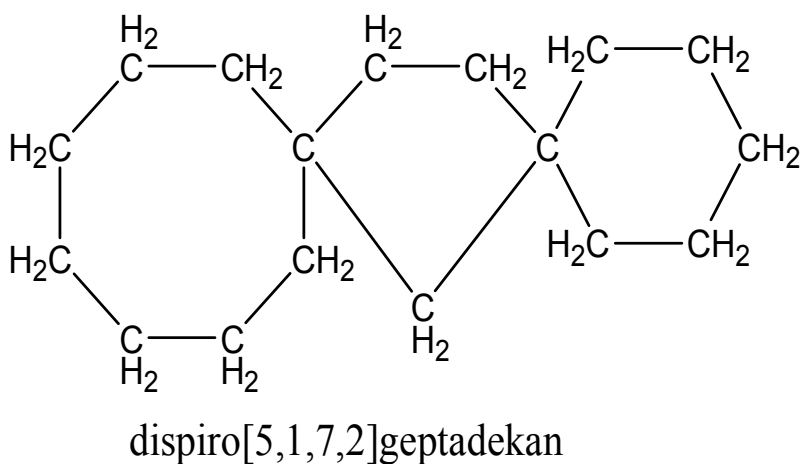
41.5. - Ikkita bir hil polisiklik komponentli monospiro birikmalarni nomlash uchun, tegishli halqa sistemalari nomi oldiga spirobi- prefiksi qo'yiladi. Polisiklik sistemalar uchun tegishli bo'lgan nomerlash tartibi saqlanib qoladi va bir komponentga tegishli nomerlar shtrix bilan belgilanadi. Spiro birikma tarkibidagi spiroatom holati tegishli nomerlar bilan nomidan oldin ko'rsatiladi.

Misol:



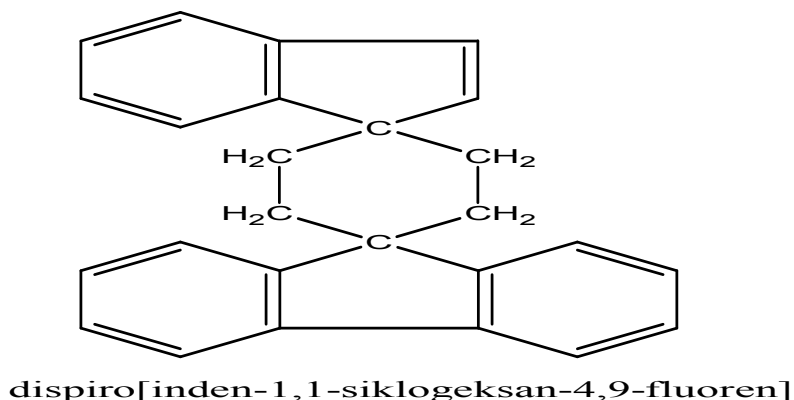
41.6. - Ikki, uch va ko'p alisiklik sistemalar tutgan polispiro birikmalarni nomlash uchun, tegishli normal asiklik uglevdorod nomiga *dispiro*-, *trispiro*-, ... perifikslari qo'shib yasaladi. Qaysi tartibda nomerlangan bo'lsa shu tartibda spiroatom bilan bog'langan zanjirdagi uglerod atomlari soni [] ichida ko'rsatiladi. Nomerlashni spiroatomga qo'shni bo'lgan chetki kichik halqadan boshlab halqa bo'yicha davom ettiradilar, bunda spiroatomlar iloji boricha eng kichik nomerlarni olishlari kerak.

Misol:



41.7. - Hech bo'lmasa bitta kondensirlangan polisiklik komponent tutgan va bittadan ortiq spiroatomga ega bo'lgan polisiklik birikmalar A-41.4 qoida bo'yicha nomlanadi, spironi *dispiro*-, *trispiro*-, ... larga almashtirib ohirgi komponent alfavit tartibi bo'yicha o'rnatiladi.

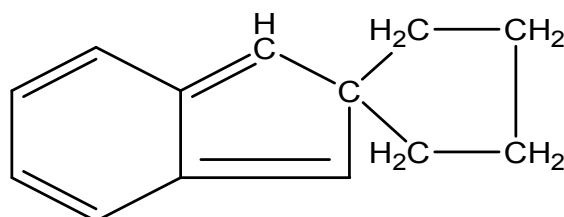
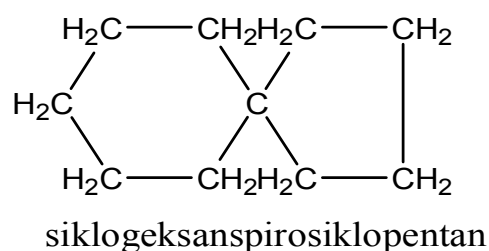
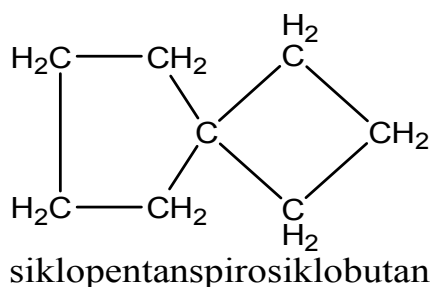
Misol:



A-42 qoida (A-41.1 va A-42.2 qoidalarga alternativa)

Agar ikkita bir hil bo'lmagan siklik komponentlar spiro bog' orqali bog'langan bo'lsa, spiro birikma nomida avval katta komponent nomi, keyin *spiro-affiksi* va undan keyin ichik komponent nomi keladi. *Spiro-* affiksi va har bir komponent nomi oldiga spiroatomni tegishli komponentdagi o'rnini ko'rsatuvchi nomer qo'yiladi, bu nomerlar komponent nomerlanishida iloji boricha eng kichik nomerlar bo'lishi lozim. Har bir komponentda uning uchun hos bo'lgan nomerlash tartibi saqlanib qoladi, lekin ikki komponentlar nomerlari shtrixlar bilan belgilanadi. Agar nomerlashni tanlash erkin bo'lsa bir nomerini ko'rsatilmasa ham bo'ladi.

Misol:

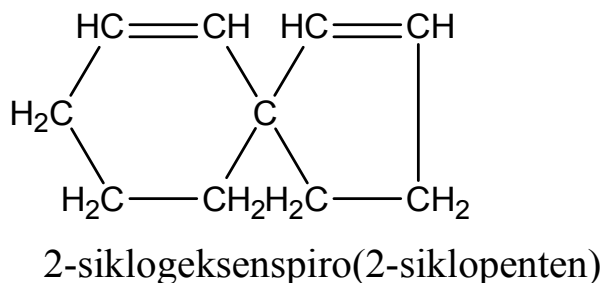


2N-inden-2-spiro-1-siklopentan

A42.2. - (A-41.3 ga alternativa)

A-41.3 qoidasi nomerlash A-42.1 bo'yicha berilganda ham qo'llash mumkin, lekin spiro bog' to'yingmagan bog'larga nisbatan eng kichik nomerlar olishi kerak .

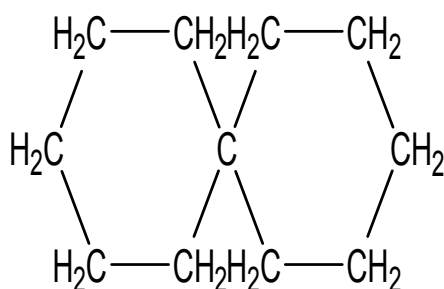
Misol:



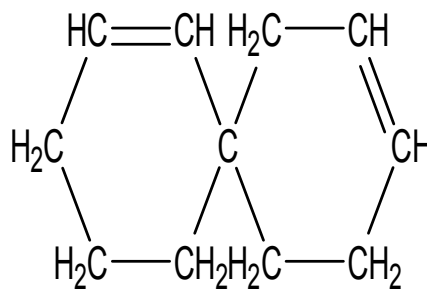
42.3. (A-41.5 alternativa)

A-41.5 qoidada qabul qilingan nomenklatura bir hil to'yingan monosiklik tarkiblarga ham qo'llash mumkin, spirosvyaz bir nomer bilan belgilanadi.

Misol:



spirobisiklogeksan

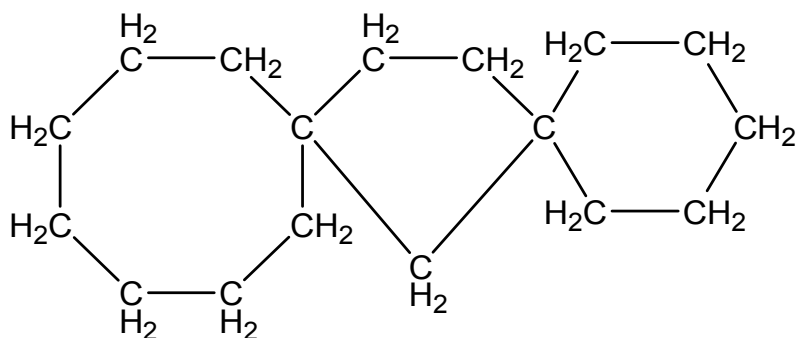


2-siklogeksepepiro-(3-siklogeksen)

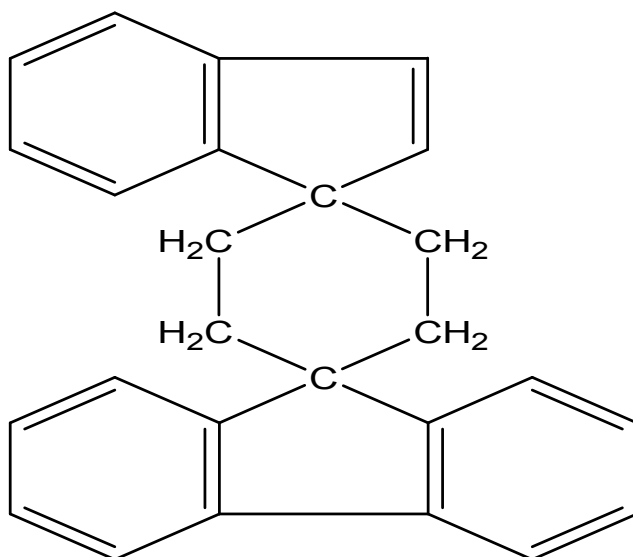
42.4. (A-41.6 va A-41.7 larga alternativa)

Bittadan ko'p spiroatom tutgan polisiklik birikmalar A-42.1 qoida bo'yicha nomlanadi. Komponentlar oddiy yoki kondensirlangan halqaligidan qat'iy nazar chetki "**katta**" komponentdan boshlab.

Misol:



siklooktanspirosiklopentan-3-spirosiklogeksan



fluoren-9-spiro-1-siklogeksan-1-spiro-1-inden

Spiro birikmalarni “katta” ligi quyidagi prinsplarga asoslangan:

- I. Agregat monosiklga nisbatan katta.
- II. Agregatlar ichida ko’p individual halqa tutgan agregat katta.
- III. Bir hil individual halqalar tutgan agregatlar orasida eng ko’p halqa tutgan agregat katta.
- IV. Agar agregatlar bir hil miqdor bir hil halqa tutgan bo’lsa ularning kattaligi alfavit bo’yicha belgilanadi.

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