

The History of Iso E Super in Perfumery Raw Materials

F fragrantica.com/news/The-History-of-Iso-E-Super-in-Perfumery-7729.html

by Matvey Yudov

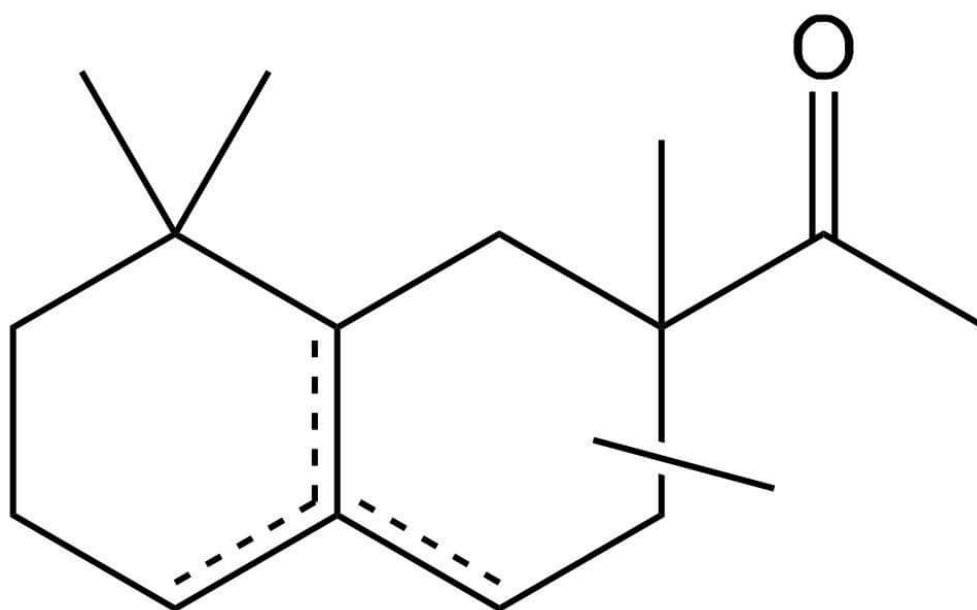
03/22/16 15:48:42 (.39 comments).



Among other synthetic perfumery ingredients, **Iso E Super** stands out a little. This enigmatic ingredient has given rise to numerous rumors and legends: allegedly it has some pheromonic qualities, makes you extremely attractive to the opposite sex, enhances the

body's unique scent and greatly improves the esthetic qualities of other fragrances. Let us dispel the illusion.

The history of Iso E Super began in the 1960s. Many scientists around the world studied aroma chemistry and explored compounds with an ionone-like structure – the substances determining the scent of violets. In 1973, John B. Hall and James M. Sanders from the American corporation International Flavors & Fragrances (IFF), discovered a new chemical compound. They patented it and called it “**Isocyclemone E**”. A little bit later, they improved the synthesis method and came up with a “refined” version – **Iso E Super**. In the patent, easily found on the Internet, there is a hand drawing of the structural formula of the substance - apparently, an autograph of one of the creators.



Molecule Iso E Super

Iso E Super has a remarkably pleasant smell – dry, woody and cedarlike, with aspects of ambergris, vetiver and patchouli and a slight phenolic nuance. At the same time, it is amazingly transparent and neutral, without that heavy feeling typical of natural woody materials. Although the Iso E Super smell is not very intense, it is rich, versatile and never annoying - you will hardly find anyone who finds it unpleasant or appalling.

As often happens to new perfumery products, the journey from the laboratory flask to the fine fragrance bottle was not straight and simple. At first, Iso E Super was used only in functional fragrances for household products, and mostly in woody compositions. Halston Woman 1975 is considered to be the first perfume, in its proper meaning, containing Iso E

Super. It contained a miniscule amount of Iso E Super, compared to modern standards. Apart from that, Halston Woman was the first significant work of Carlos Benaïm. Just as a flash-forward, the perfumer-to-be Geza Schön was then 5 years old.



Halston by Halston (1975)

The great breakthrough for Iso E Super came in 1988, when Christian Dior Fahrenheit was launched. Jean-Louis Sieuzac, under the guidance of Maurice Roger, then president of Parfums Christian Dior, created an amazing, groundbreaking men's perfume, free from the aromatic fougère clichés of the 70-80s. Fahrenheit reshaped the perfumery world, and brought forth many variations of different artistic merit. One of its structural peculiarities was the large amount of Iso E Super – about 25%. It is one of the first cases of an Iso E Super “overdose” and the first attempt to construct the fragrance with Iso E Super as a main active ingredient.



Fahrenheit's success encouraged perfumers to experiment with Iso E Super. It turned out that this high-performance material works perfectly well not only in wood and amber compositions, but in a variety of genres. For example, two years later, in 1990, Sophia Grojsman created Lancôme Trésor. This perfume contains 18% of Iso E Super, in conjunction with a great amount of galaxolide, hedione and α -methyl ionone. Lancôme had already produced a perfume with the name “Trésor”, once in 1952. The “old” name for a new fragrance was confirmed at the last minute. Sophia Grojsman herself gave it a working title “Hug me”. That is the reason why the Iso E Super/galaxolide/hedione/ α -methyl ionone accord is often called *Hug-me-accord* or *Grojsman-accord*. It turned out to be such a perfect combination that it became the base for numerous floral perfumes of the time.



Another example of an amazing fragrance, based on a high concentration of Iso E Super (about 43%) is Shiseido Feminite du Bois. It was launched in 1992 by Pierre Bourdon and Christopher Sheldrake. Before that, woody compositions used to be a men's domain, but Feminite du Bois proclaimed woody and oriental perfumes a new female trend. Here, the wood and cedar theme was elaborately decorated with dried fruit and floral ornament. A little later, Christopher Sheldrake developed this idea and created several fragrances for the Serge Lutens line (Bois de Violette, Bois et Fruits, Bois et Musc, Un Bois Sepia, Un Bois Vanille) and in 1994 Pierre Bourdon used a similar combination for Christian Dior Dolce Vita.

As time went on, scientists developed several acceptable ways of Iso E Super syntheses and the substance appeared in the stock of almost all aroma chemical producers under different names: *Isocyclemone E*, *Amberfleur*, *Orbitone*, *Anthamber*, *Patchouli Ethanone*, *Ambralux* etc. Chemically speaking, Iso E Super is not an individual compound but a very complex isomer mixture. Depending on the synthesis method and conditions for chemical reactions, the outcome will have a unique isomeric content and impurity combination. As a result, every trade mark has its smell and its nuances. Strictly speaking, only the IFF product may be referred to as "Iso E Super".

The overall production of Iso E Super is extremely high, about 3,000 tons per year, which keeps it from getting too expensive an ingredient. A reasonable price (about 9 cents per gram), superb aromatic properties, high compatibility with other ingredients - all these features make Iso E Super a very popular and wide-spread ingredient. The smell of this ingredient has made a huge difference to the world of modern perfumery and largely defined its directions.



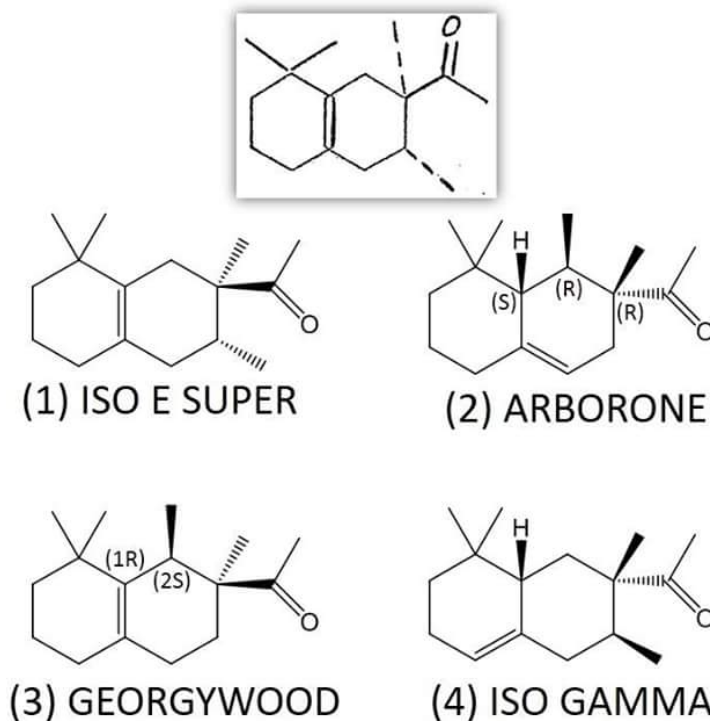
Another landmark event for Iso E Super took place in the 1990s. As a result of routine chromatographic research, Givaudan chemists found out that the substance, whose structural formula was in the patent, had almost no smell at all (odor threshold is 500 ng/l). The substance defining the smell of the mixture is a by-product with just a 5% content in commercial Iso E Super. This substance called Arborone or Iso E Super Plus, smells 100,000 times stronger (*odor threshold is only 0.005 ng/l*) and this tiny 5% makes the major contribution into the resulting Iso E Super smell.

Ten years later, scientists revealed that the Arborone smell is largely defined by its (+)-(1R,2R,8aS)-isomer. In spite of its outstanding olfactory characteristics, there are no methods yet, allowing producing at least racemic arborone on an industrial scale. The best option available now is an isomer mixture with two-three times as high a content (that is around 10%) as in the “classic” Iso E Super.



At the end of the 90s, Givaudan suggested an alternative – the synthesis of a new substance, called **Georgywood**. This compound has a smell quite similar to those of arborone, but a little less intense (odor threshold is 0.03 ng/l). The enantiomer (-)-(1R,2S) contributes more – it smells 175 times stronger (corresponding thresholds are 0.02 and 3.5 ng/l). Now Georgywood is a captive substance, accessible only to Givaudan perfumers. It can be found in a lot of perfumes, for example, Priscilla Presley Golden Moments (5%), DKNY Be Delicious for men (2.3%), Dior Higher (1.9%), Nina Ricci Love in Paris (1.8%), Burberry Brit (1.8%).

Searching for a more polar analogue of Iso E Super, biodegradable and better soluble, IFF chemists discovered another compound, similar to Iso E Super – ***Iso Gamma***. The smell of Iso Gamma is subjectively perceived by many to be even more interesting and multi-faceted. For a while the product, containing 18% of Iso Gamma, was captive, but now there are several commercially available products with a high content of it.



Iso E Super has well established itself in almost all perfume genres, but its highest concentration may still be found in numerous men's woody fragrances: 48% in Abercrombie & Fitch Fierce, 55% in Terre d'Hermes. Very often, a high content of Iso E Super is accompanied by vetiver: 45% in Lalique Encre Noir, 48% in Kenzo Air. Often as well, it is met in incense mono-fragrances: Comme des Garçons Incense Jaisalmer – 51%, Comme des Garçons Incense Kyoto – 55%. Even in floral perfumes its content is sometimes surprisingly high: in Perles de Lalique as much as 80%. I believe that these figures convincingly show that an additional “lay-up” of Iso E Super over other fragrances does not really make sense – it's quite likely that your favorite perfume already has a high concentration.



Geza Schön

The logical climax came in 2006. Geza Schön launched his own fragrance line Escentric Molecules. Molecule 01 is claimed to be an alcoholic solution of the only component – Iso E Super. That is its concentration in Molecule 01: 100 % and it is an all-time record. According to Geza he had addressed Diesel with the idea of the fragrance based just on this one component, but they thought it “too way out”. Noteworthy is that it is not the first case when an individual aroma chemical is presented as the perfume composition. In 2001, Helmut Lang launched Velviona, based on the only ingredient – Velvione, a synthetic musk. Geza Schön repeatedly mentioned in his interviews and articles that for his fragrance he used not a “conventional” Iso E Super, but a material, rich in Iso Gamma.

In 2015, Nomenclature launched a whole fragrance line, based on an “overdose” of several popular synthetic ingredients – portraits of substances, so to say, a little high-coloured and edited, showing strong points and different olfactory facets. Orb ital, based on Orbitone – an Iso E super analogue, produced by Takasago – contains around 75% of the main ingredient. Its woody and cedar notes are accentuated by other synthetic woody materials – cedar Vertofix and Cedramber and sandalwood Hindinol and Radjanol.

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Author





Matvey Yudov Author, editor

Matvey Yudov is a chemist, perfumer, and musician. Mat is a researcher and specialist in the chemistry of aromatic materials. He graduated from Lomonosov Moscow State University in 1999. He writes for the popular perfume blog leopoldray.blogspot.com (in Russian).

News Comments

Write your comment



akawanis 08/31/17 14:17

Such a mysterious beast. :-) Like Arabian Knight, I am completely anosmic to Iso-E. Molecule 01 smells like regular tap water to me. No smell. Zilch.

Please keep us posted if there are any studies done, on what % of the population is Anosmic to Iso E. Just by reading the reviews on Molecule 01, there are close to a dozen comments to this effect. It sounds like we're not alone.



Josephazzato 08/31/17 03:45

I like iso e super I have a undissolved powder form for use in making my own colognes which I have used it in, and it stays on close for a very long time(months!) so when every thing else has died down it is still there for awhile and in cold weather!

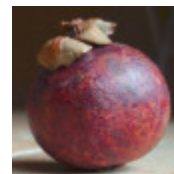
I really love this component but it seems like there are other people on here not giving it so much love

of cores every ones nose is not the same

have not found any one that did not like my colognes yet so may be I am going in the right direction:)



Alces Alces 07/30/17 17:37

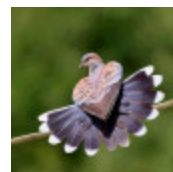


It took me awhile to understand Iso E Super. The first few times I detected it in a scent, it seemed like a dusty woody ozonic artificial smell, yet I couldn't stop sniffing it. I dismissed it as dry and chemical, but could not tear myself away from it. Before long, I was craving anything I had with Iso E Super...Eternity, Encre Noir, Herod. While it may not have pheromone powers, it certainly has a psychotropic effect. If I wear Perles de Lalique or Lady Vengeance at night, I have bizarre, vivid, almost lucid dreams. Not sure whether it affects everyone that way, but it affects me.



Divine Blue 04/30/17 05:15

Fascinating article, Mat. Thank you for sharing such interesting developments in perfume history with us. This well written article helps explain the evolution of perfumery that we seldom hear about.



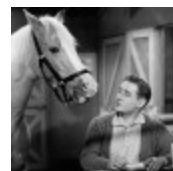
gordbrad 02/12/17 08:15

arabian night, do not be befuddled. :-)
if you smell Terre D'Hermes, Encre Noire, and Poivre Samarcande separately, and maybe Perles, then analyzed what they have in common... don't try too hard. it's a smell like an expensive just-cleaned airport that is air-conditioned with a bit of static electricity, and faint black pepper and cedar tones. don't look too hard--it's right in front of you. :-)
it really is also like the difference in chicken broth with and without msg. Declaration de Cartier is never mentioned as a big iso e super scent, yet it is easy to smell in that because there's a savoury vegetable broth kind of thing going on with Declaration, where the iso e super seems to me to stand out as the pepper and the cedar in the broth, if that makes sense at all lolll... good luck!



Arabian Knight 01/13/17 04:12

I still remain befuddled by Iso-E Super. I am completely anosmic to the smell in isolation - "Molecule 01", for example, smells like a faint gas to me, nothing remotely cedar-like as it is described.



This makes it hard for me to identify it in perfume. I've been told the Hermessences line often contains huge overdoses of Iso-E Super, but I can't pick it out from the other notes. I've been told that rather than smelling Iso-E Super on its own, I would "feel" it as it gives a light, airy "boost" to the other ingredients?

Anyway, it's frustrating not being able to properly analyze its effects.



Zetamamman 04/17/16 04:39

Thanks, great article!



Petticoats 03/24/16 16:00

Count me among those who wish that perfumes would disclose up front whether they contain Iso E Super. It burns my sinuses and smells like raw alcohol to me, and it's in so many of the fragrances I've sampled recently. It ruins perfumes for me. At least I know, thanks to Fragrantica and articles like this one, _why_ I detect something horrible that so many people either don't notice or experience as pleasant.



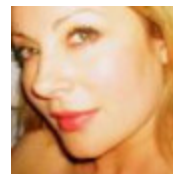
pessego75 03/24/16 10:46

O perfume brasileiro Essencial Exclusivo Floral da Natura criado por Marion Costero também tem altas doses dessa molécula. Incrível: não sabia que o Trésor tinha esse ingrediente!



hellovascent 03/24/16 05:15

What a pleasure to read this no blah-blah article.



For anyone more interested in chemical matters I highly recommend a look at "Scent and Chemistry, The Molecular World of Odors" by Ohloff, Pickenhagen and Kraft. It is quite a scientific book, but also offers sections citing the perfumes where Rose, Osmanthus, Violet, etc., Labdanum, Oakmoss etc. as well as Animalic Notes have been used.

This is no advertisement, I bought the book myself and it is not cheap.

I am really looking forward to the synthesis of a more biodegradable molecule than Iso E Super, which due to its largeness unfortunately lasts forever.



shiva-woman 03/23/16 19:52

I love Serge Lutens, and I love his Cedre, and probably love Iso E Super. To me, it's all molecules; I'm always surprised by how much people differentiate between "natural" and "synthetic." I love "nature" and "natural" as much as anyone, and am all about my food being as close to the earth as possible, etc.,--but many of my favorite scents are not "natural." The other day, I was smelling an "organic" "natural" scent, and the oil/scent was rancid and lost. That's what happens so often in nature. At any rate, I really enjoyed this article.

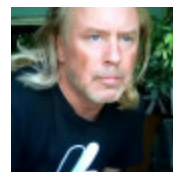


SadieBluesLady 03/23/16 19:15

Very informative article, thank you!! I truly hope that some day soon the perfume industry has to disclose the amount of Iso E Super (or any of the newer synthetics) be listed in the ingredients. I tried sampling Escentric Molecules scents and quickly discovered that I cannot smell them!

6FeetOver 03/23/16 15:52

@Twilight99: agree completely. I wish I could give you multiple thumbs up! Iso E Super's like an ice pick between the eyes, for me. Causes instant headache/sneezing fit/sinus pain. Utterly repellent. It smells toxic! :(



Twilight99 03/23/16 15:01

Iso E Super should be banned from perfumery, or at the very least be clearly labelled on the bottles. I've read that about 25% of people have problems with this compound. For me it ruins my sense of smell and stings my eyes. I simply can't smell perfumes with high concentration of Iso E Super. Other people get headaches or it just smells horrible and ruins perfumery.



odie 03/23/16 12:21

Very good article, it explains a lot. In one sense Iso-E Super proves that perfumery is moving on with times. In another instance it just makes me wonder how much a perfume would be worth in the future if there is so much chemistry and less actual 'juice.' I know perfumes must have molecules to fix it, propel it and aid in extraction, protect it from UV rays and preserve it but there is just a tiny side of me that holds a warning that some chemical compounds are just not good for you or your skin.

That being said, I don't consider it as actually dangerous and from what Matt said, Iso-E Super is biodegradable. I am a woman who has straddled the fence between liking perfumery and finding the right ones for my sensitive skin and unique chemistry. Right now I don't own any Iso-E fumes but perhaps in the future I would give one a shot! However, for the most part my tastes in fragrances are more conservative.

K1 03/23/16 07:11

Very thorough, descriptive, informative, and detailed article. Thank you so much.

nexangelus 03/23/16 06:38

Very interesting Mat. So it seems my first iso E super perfume was my beloved Dolce Vita, back in the day. I have also tried and loved 4160 Tuesdays The Sexiest Scent...and I am fairly certain Girl (Comme des Garçons collaboration with Pharrell Williams) has a whole chunk of it, in it. I like the woody, peppery and often smooth yet sparkly feel of it. I have not tried the famous or infamous Molecule 01 yet.





wesleyhclark 03/23/16 06:23

EXCELLENT article, bravo! I look forward to more such.

I once bought some Iso E Super and made a homebrew Molecule 01 with Everclear alcohol. It's... okay.

To me, pure Iso E Super in the vial has the curious property of smelling at once like a soft cedar and warm skin in flannel. It smells rather intimate. And using it with other scents in a layer has the effect of velvetizing other scents.

Odd stuff!

I.D.Adam 03/23/16 06:17

Great article! Look forward to more.



mamehavolette 03/23/16 05:08

This article is amazing, thank you so much Mat! I have always been so much fascinated by the world of chemistry, and it is so cool when chemistry meets perfumery so effectively. Now I want to try Iso E Super scents, I am so excited about that!



zoka 03/23/16 00:34

What to say but bravo Mat and welcome. It is really good to see somebody who knows perfumery inside out from molecular level up among us. Your article was very entertaining too.

Bigsly 03/22/16 20:21



The Perfumeshrine blog has this list of % iso e super:

- 1 Molecule 01 (escentric molecules, 2005) 100%
- 2 Perles de Lalique (Lalique, 2007) 80%
- 3 Poivre Samarcande (Hermès, 2004) 71%
- 4 Escentric 01 (escentric molecules, 2005) 65%
- 5 Terre d'Hermes (Hermes, 2006) 55%
- 6 Incense Kyoto (comme des garçons, 2002) 55%
- 7 Incense Jaisalmer (comme des garçons, 2002) 51%
- 8 Fierce for Men (Abercrombie & Fitch, 2002) 48%
- 9 Kenzo Air (Kenzo, 2003) 48%
- 10 Encre noire (Lalique, 2006) 45%

I tried 8 of these and disliked them, along with Fahrenheit (and I also always felt that something in Higher irritated me). I would be shocked if it wasn't iso e super, but I'm sure there are scents I like that contain some amount of iso e super. I just wish they had to disclose how much of these kinds of molecules are in the scent, so that I would avoid blind buys if it was more than 10% or whatever.

6FeetOver 03/22/16 19:46

Very interesting... For me, Iso E Super is a fragrance *foe*!

drelovesit 03/22/16 19:01

Great read and perfect timing! I've recently been wearing Molecule 01 and I love it... Really fascinated by Iso E Super. I'm looking forward to trying other Iso E Super fragrances!



johnngreenink 03/22/16 18:59

Great article, Mat! Iso E is a fascinating component - it can be very elusive. I notice when smelling it by itself, it tends to 'lead the nose' into many directions as the mind tries to make associations with it. It is quite fascinating; this history really helps understand how it came to be developed.



SzekelyEmoke 03/22/16 18:09



Awesome! My favorite perfume containing Iso E Super is Escentric Molecules Escentric 02. Really lovable and as mentioned in the article "is so liked, that it can't bother anyone" and so it is; I got a lot of compliments over it.



Mary-Jayne 03/22/16 17:59

This is an interesting article* - but is there any chance please of a simplified explanation or version of the detailed scientific chemistry stuff for people like me who don't have a clue what all that means? My knowledge and understanding of this kind of thing is extremely limited - nonexistent you might even say** - but I am sure I cannot be the only one. And I would like to understand better what the science/chem section was saying.

Hoping someone can translate! Thanks!

* at least, I think it is. The bit where it goes all sciencey could be totally made up for all I know!

**There are very few things I remember from school science lessons, the one thing I do clearly remember is the rhyme: "Jonny was a chemist, but Jonny is no more, 'coz what he thought was H₂O was H₂SO₄"!

Oh, and that if you hold a plastic ruler in the bunsen burner flame it will melt into cool shapes, and also give off toxic fumes.

And that some of the pupils were willing to risk the lives of themselves and everyone else in the building by sneaking into the labs and turning the gas on, in the apparent hope that the resultant gas leak would get them out of class for a bit. But you don't really need to know all this do you?!!

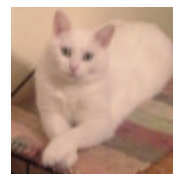


jeca 03/22/16 16:08

Welcome Mat! ;o)))



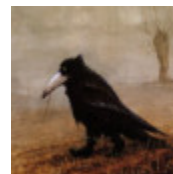
NebraskaLovesScent 03/22/16 16:03



Welcome, Mat!

I am a fan of Iso E Super by way of Molecule 01. I didn't realize it was in so many of these other fragrances, many of which I like and which I need to give another sniff.

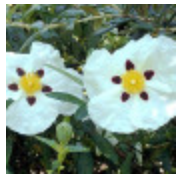
Thank you for an informative article!

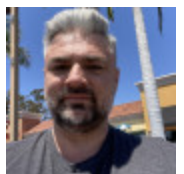
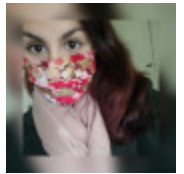




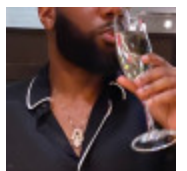
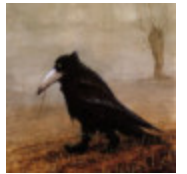




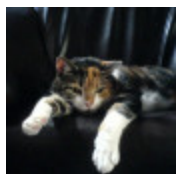
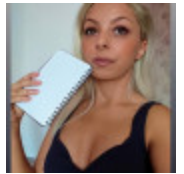




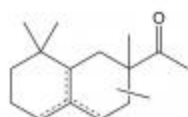
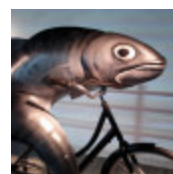












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