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# PRODUCTS

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## BRASSYLIC ACID

EC / List no.: 208-011-4

CAS no.: 505-52-2

Brassylic acid is an alpha,omega-dicarboxylic acid that is undecane substituted by carboxylic acid groups at positions C-1 and C-11.

Brassylic acid has a role as a metabolite.

Brassylic acid is a chemical compound used in a wide range of applications through different industries.

Brassylic acid is primarily used for the synthesis of fragrances and is a potential alternative for polycyclic acid as it is an easily degradable chemical compound.

Polycyclic musk, which is commonly used for synthesis of fragrances face ecological challenges as they are not environmentally friendly.

To overcome these challenges, brassylic acid is used for the synthesis of macrocyclic musk i.e. fragrances.

Brassylic acid comes from the family of long-chain dicarboxylic acids.

Brassylic acid is naturally occurring in animal tissues and plants.

When carbon molecules, 24 hydrogen molecules and 4 oxygen molecules come together, they form brassylic acid and its chemical formula is C<sub>13</sub>H<sub>24</sub>O<sub>4</sub>.

The carboxyl group shows traditional chemical applications useful in a variety of industrial sectors.

Brassylic acid like most other Dicarboxyl acids can produce two kinds of salts because it contains two carboxylic groups.

Brassylic acid is a white crystalline substance, slightly soluble in water, and has a melting point of 130 ° C.

Brassylic acid is used in polymers, biological solvents, lubricants, and perfumeries plasticizer production. Brassylic acid is used to manufacture plastics such as nylon-1313 as an intermediate.

The carboxylic acids produce an almost infinite number of esters.

Esters are formulated by acid and alcohol and the removal of water, as for a variety of direct and indirect applications, carboxylic acid esters are used.

Lower chain esters are used as the base, plasticizers, solvent transmitters, and coupling agents for flavouring.

Higher chain compounds are employed to generate a broad range of target compounds and are used as components in metal working fluids, surfactants, lubricants, detergents, petroleum agents, emulsifiers, weathering agents textile

processing, and emollients.

The infinite number of esters give a wide range of specific gravity, boiling point, viscosity, vapor pressure, and other chemical and physical properties for proper selection of applications.

Applications of Brassylic Acid.

Brassylic acid is very useful in a wide variety of industrial applications, some of the uses of brassylic acid are listed below:

Plasticizer for polymers

Engineering plastics

Adhesive and powder coating

Perfumery and pharmaceutical

Biodegradable solvents and lubricants

Epoxy curing agent

Corrosion inhibitor

Electrolyte

Long-chain dibasic acids are more flexible and stronger than short-chain dibasic acids because their bending ability minimizes breakage and reduces polymer bonds.

Bioprocesses are used to produce a wide range of high-quality long-chain dibasic acid.

dibasic acids are produced by paraffin fermentation followed by purification, instead of the conventional multi-stage chemical process.

A sustainable feedstock is already undergoing research production of some dibasic acids from fatty acids.

This advancement in technology will allow renewable features of many marketed products to be introduced.

The growth and development of the perfume and fragrance industry, emerging market of brassylic acid along with its applications like PVC and plasticizers clubbed with the use of the regenerating feedstocks, is expected to increase market growth in brassylic acid significantly.

Advanced technical applications of brassylic acid are expected to create lucrative opportunities in the lubricant industry, adhesive industry, and plastics industry.

That being said, the adverse effects of brassylic acid and the substitutes available in the market for consumers are likely to hinder the exponential rise of the brassylic acid market.

The global production of brassylic acid for perfumes is currently higher than any other acid and is expected to be the same for the coming years.

Nevertheless, other forms of musk compounds are available for use in the market, including nitro musk compounds and polycyclic musk compounds.

Brassylic acid is predicted that this competition will be the central issue that will restrain market growth. Because of the increased availability of sources of renewable raw materials like vegetable oil, brassylic acid consumption is the highest in Europe.

According to a report by Research Dive, Europe is currently the highest contributor to cash flow among all the regions studied and is anticipated to keep up its dominance and lead over the projected timeline, accompanied by the Asia Pacific and North America.

Brassylic Acid (DC13T), in the form of a white powder or flake, is dibasic acids which is a family of organic compounds, also known as 'long-chain dicarboxylic acids', and has a chemical formula of  $\text{HOOC}(\text{CH}_2)_{11}\text{COOH}$ .

Brassylic acid has recommended applications in high performance polyamides/nylon, hot melt adhesives, and more.

Brassylic acid is a dicarboxylic acid with 13 carbon atoms, occurring in plant and animal tissues.

Brassylic acid exhibits typical carboxyl group chemistry useful in a variety of industrial applications.

Dicarboxylic acid can yield two kinds of salts, as they contain two carboxyl groups in its molecules.

Brassylic acid is a white crystalline; melting point at 130 C, slightly soluble in water.

Brassylic acid is used in manufacturing plasticizer for polymers, biodegradable solvents, lubricants and perfumeries.

Brassylic acid is used as an intermediates to produce engineering plastics such as nylon-1313

Brassylic acid is a versatile chemical intermediate.

Brassylic acids were first created in the nineteenth century by oxidative ozonolysis of erucic acid.

Brassylic acid is a dibasic acid, which is available in the market in the form of flakes, powder or in diluted form.

Brassylic acid belongs to the family of organic compounds called long-chain dicarboxylic acid.

The esters of brassylic acid are used as low-temperature plasticizers in polyvinyl chloride.

Moreover, esters of brassylic acid are used as lubricants which are used at a wide range of temperatures and are extensively utilized to manufacture synthetic musk.

Commercially, brassylic acid serves as a monomer of dicarboxylic acid for the production of polyamides such as nylon 613 and nylon 1313.

The demand for brassylic acid is expected to increase over the forecast period, owing to rising applications of brassylic acid in various end-use industries such as fragrances & perfumes, lubricants, and adhesives coupled with important use in the formation of polyurethanes, alkyd resins, and polyamides.

Moreover, it is used as monomers for certain co-polymers such as nylon 13,13.

Various diesters of brassylic acid are incorporated into PVC and are used as plasticizers.

These derivatives of brassylic acid possess property to remain stable at low temperature conditions.

Di-cyclohexyl brassylate (a derivative of brassylic acid) has properties similar to those shown by bis-3-ethylhexyl phthalate, which is the most widely used plasticizer in moderate temperature applications.

Moreover, nylon that is manufactured with brassylic acid have low moisture absorption capability, which are suitable for applications that require toughness, retention of strength, abrasion resistance and electrical properties under changing climatic conditions.

Furthermore, the properties of nylon 1313 which is manufactured using brassylic acid is similar to that of the commercially produced polyamides such as nylon 11, 12, 610, and 612.

These factors are expected to drive demand for brassylic acid over the forecast period.

Brassylic acid is majorly used in fragrance industry for synthesis of macrocyclic musk, however, other musk compounds such as nitro musk and polycyclic musk compounds are readily available in the market.

Moreover, direct contact with brassylic acid can cause skin & eye irritation and is expected to cause respiratory problems.

Brassylic acid, a dicarboxylic acid with the molecular formula -  $\text{HOOC}(\text{CH}_2)_{11}\text{COOH}$  - is a fatty acid which can be technically extracted from erucic acid together with pelargonic acid.

The compounds of the brassy acids are used in the food and cosmetic industry.

This refers e.g. to ethylene brassylate, an ethylene glycol diester of brassy acid.

The macrocyclic compound has a sweet musky scent and is sold under the name Musk T.

The dimethyl ester of brassyl acid(dimethyl brassylate) is used in cosmetic formulations as skin care products and emollients.

Brassylic acid, also coined as tridecanedioic acid is an alpha, omega dicarboxylic acid which is substituted by more than one carboxylic acid groups.

Brassylic acid is derived from erucic acid, found in the brassica family of plants such as rapeseed, crambe, and mustard among others.

Brassylic acid is available in the market in powder, flakes or diluted form.

The esters of brassylic acid are used as a lubricant and as plasticizers for polyvinyl chloride.

Brassylic acid esters are also used in the production of synthetic musk used in the fragrance industry.

#### About Brassylic acid

##### Helpful information

Brassylic acid is registered under the REACH Regulation and is manufactured in and / or imported to the European Economic Area, at  $\geq 1\ 000$  to  $< 10\ 000$  tonnes per annum.

Brassylic acid is used at industrial sites.

##### Consumer Uses

ECHA has no public registered data indicating whether or in which chemical products the substance might be used. ECHA has no public registered data on the routes by which Brassylic acid is most likely to be released to the environment.

##### Article service life

ECHA has no public registered data on the routes by which Brassylic acid is most likely to be released to the environment. ECHA has no public registered data indicating whether or into which articles the substance might have been processed.

##### Widespread uses by professional workers

ECHA has no public registered data indicating whether or in which chemical products the substance might be used. ECHA has no public registered data on the types of manufacture using Brassylic acid. ECHA has no public registered data on the routes by which Brassylic acid is most likely to be released to the environment.

##### Formulation or re-packing

ECHA has no public registered data indicating whether or in which chemical products the substance might be used. ECHA has no public registered data on the routes by which Brassylic acid is most likely to be released to the environment.

##### Uses at industrial sites

ECHA has no public registered data indicating whether or in which chemical products the substance might be used. Brassylic acid is used for the manufacture of: plastic products.

Release to the environment of Brassylic acid can occur from industrial use: for thermoplastic manufacture.

Manufacture

ECHA has no public registered data on the routes by which Brassylic acid is most likely to be released to the environment.

Brassylic Acid is a family of organic compounds with a chemical formula of  $\text{HOOC}(\text{CH}_2)_{10}\text{COOH}$ .

These compounds are known as 'long-chain dicarboxylic acids' when the total carbon number is greater than nine ( $n > 7$ ).

Long-chain diacids provide greater flexibility and strength than short-chain diacids due to their ability to bend, which minimizes breakage as well as reduces the number of links in a polymer.

Is produced from paraffin through fermentation followed by purification, rather than the traditional multi-step chemical process.

Used in high performance polyamides/nylon.

Brassylic Acid uses and applications include: Flexibilizer for nylon engineering plastics and fibers, polyester films and adhesives, urethane elastomers and elastomeric fibers, lubricant basestocks and greases, polyester and polyamide fibers, wire-coating, molding resins, polyamide hot melts; used in the synthesis of polycyclic synthetic musk, polyamide resins, hot melt adhesives

Suggested storage of Brassylic Acid: Store in cool, dry, well-ventilated area away from incompat. substances; keep tightly closed

Material of high-level essence, perfume and synthetic musk T; high grade food packing material; main material of high grade nylon 1313

NAME: Brassylic Acid (DC13, Tridecanedioic Acid)

CAS NO.: 505-52-2

EINECS NO.: 208-011-4

HS CODE: 2917-1900

APPEARANCE: White Powder

FORMULA:  $\text{C}_{13}\text{H}_{24}\text{O}_4$

M.W.: 244

APPLICATION: Polyamide/Nylon, Corrosion inhibitor, Metal-working fluid, Lubricant, Adhesive, Powder coating

1,11-Undecanedicarboxylic acid (Tridecanedioic acid, Brassylic acid, Brassilic acid) is an unusual odd-numbered dicarboxylic acid that appears in the urines of children with neonatal adrenoleukodystrophy and Zellweger syndrome, as an additional marker of these peroxisomal disorders.

Brassylic acid is an unusual odd-numbered dicarboxylic acid that appears in the urines of children with neonatal adrenoleukodystrophy and Zellweger syndrome, as an additional marker of these peroxisomal disorders.

Brassylic acid

CAS NO 505-52-2

Molecular Formula : $\text{C}_{13}\text{H}_{24}\text{O}_4$

Molecular Weight :244

Specification:

Appearance: White powder

Total Acid:99%min.

Undecanedioic Acid:97%min.

Moisture:0.5%max.

Melting point: 110.0-114.0°C

Application:

High class synthetic flavors,high class lubricant, corrosion inhibitor, polyamide resin, hot melt adhesive, powder coating

IUPAC NAMES:

1,13-tridecanedioic acid

Tridecanedioic Acid

Tridecanedioic acid

tridecanedioic acid

tridecanedioic acid



## SYNONYMS:

TRIDECANEDIOIC ACID

505-52-2

1,11-Undecanedicarboxylic acid

Brassylic acid

Brassilic acid

1,13-Tridecanedioic acid

Undecane-1,11-dicarboxylic acid

Brassylate

CAS-505-52-2

tridecanedioate

Brassilate

1,11-Undecanedicarboxylicacid

EINECS 208-011-4

1,13-Tridecanedioate

1,13-Brassylic Acid

EC 208-011-4

1,11-Undecanedicarboxylate

Undecane-1,11-dicarboxylate

1, 11-Undecanedicarboxylic acid

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