

5153-25-3 2-ethylhexyl-4-hydroxybenzoate

ALTERNATIVE NAME: octyl paraben

CATEGORY OF USE: Industrial additive

ENDOCRINE DISRUPTOR REFERENCES

Akahori Y, Nakai M, Yamasaki K, Takatsuki M, Shimohigashi Y, Ohtaki M. 2008. Relationship between the results of in vitro receptor binding assay to human estrogen receptor alpha and in vivo uterotrophic assay: Comparative study with 65 selected chemicals. *Toxicol in Vitro* 22(1):225-231.

Blair RM, Fang H, Branham WS, Hass BS, Dial SL, Moland CL, Tong W, Shi L, Perkins R, Sheehan DM. 2000. The estrogen receptor relative binding affinities of 188 natural and xenochemicals: structural diversity of ligands. *Toxicol Sci* 54(1):138-153.

Schultz TW, Sinks GD, Cronin MTD. 2000. Effect of substituent size and dimensionality on potency of phenolic xenoestrogens evaluated with a recombinant yeast assay. *Environ Toxicol Chem* 19(11):2637-2642.

USE REFERENCES

Blair RM, Fang H, Branham WS, Hass BS, Dial SL, Moland CL, Tong W, Shi L, Perkins R, Sheehan DM. 2000. The estrogen receptor relative binding affinities of 188 natural and xenochemicals: structural diversity of ligands. *Toxicol Sci* 54(1):138-153

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DATE ADDED: May 5, 2011

5466-77-3 2-ethylhexyl-4-methoxycinnamate

ALTERNATIVE NAMES: octinoxate, octylmethoxycinnamate (OMC) , octyl p-methoxycinnamate

CATEGORIES OF USE: Personal care product/Cosmetic ingredient, Pesticide ingredient, Unconventional Oil and Gas

ENDOCRINE DISRUPTOR REFERENCES

Carbone S, Szwarcfarb B, Reynoso R, Ponzo OJ, Cardoso N, Ale E, Moguilevsky JA, Scacchi P. 2010. In vitro effect of octyl - methoxycinnamate (OMC) on the release of Gn-RH and amino acid neurotransmitters by hypothalamus of adult rats. *Exp Clin Endocrinol Diabetes* 118(5):298-303.

Klammer H, Schlecht C, Wuttke W, Jarry H. 2005. Multi-organic risk assessment of estrogenic properties of octyl-methoxycinnamate in vivo - A 5-day sub-acute pharmacodynamic study with ovariectomized rats. *Toxicology* 215(1-2):90-96.

Klammer H, Schlecht C, Wuttke W, Schmutzler C, Gotthardt I, Kohrle J, Jarry H. 2007. Effects of a 5-day treatment with the UV-filter octyl-methoxycinnamate (OMC) on the function of the hypothalamo-pituitary-thyroid function in rats. *Toxicology* 238(2-3):192-199.

Kunz PY, Fent K. 2006. Multiple hormonal activities of UV filters and comparison of in vivo and in vitro estrogenic activity of ethyl-4-aminobenzoate in fish. *Aquat Toxicol* 79(4):305-324.

Rachon D, Rimoldi G, Wuttke W. 2006. In vitro effects of benzophenone-2 and octyl-methoxycinnamate on the production of interferon-gamma and interleukin-10 by murine splenocytes. *Immunopharmacol Immunotoxicol* 28(3):501-510.

Seidlova-Wuttke D, Jarry H, Christoffel J, Rimoldi G, Wuttke W. 2006. Comparison of effects of estradiol (E2) with those of octylmethoxycinnamate (OMC) and 4-methylbenzylidene camphor (4MBC)--2 filters of UV light - on several uterine, vaginal and bone parameters. *Toxicol Appl Pharmacol* 210(3):246-254.

USE REFERENCES

Orem WH, Tatu CA, Lerch HE, Rice CA, Bartos TT, Bates AL, Tewalt S, Corum MD. 2007. Organic compounds in produced waters from coalbed natural gas wells in the Powder River Basin, Wyoming, USA. *Appl Geochem* 22(10):2240-2256.

US Dept of Health & Human Services. Household Products Database. [<http://hpdb.nlm.nih.gov/>].

US EPA. InertFinder. [<http://iaspub.epa.gov/apex/pesticides/f?p=175:1:>].

US National Library of Medicine. Haz-Map. [<http://hazmap.nlm.nih.gov/index.php>].

DATE ADDED: May 5, 2011 **DATE UPDATED:** March 20, 2017

103-23-1 di(2-ethylhexyl)adipate

ALTERNATIVE NAMES: DEHA, di- (2-ethylhexyl) adipate, bis (2-ethylhexyl) adipate, bis (2-ethylhexyl) hexanedioate

CATEGORIES OF USE: Food additive, Household product ingredient, Industrial additive, Personal care product/Cosmetic ingredient, Pesticide ingredient, Plastic/Rubber, Solvent, Unconventional Oil and Gas

ENDOCRINE DISRUPTOR REFERENCES

Jobling S, Reynolds T, White R, Parker MG, Sumpter JP. 1995. A variety of environmentally persistent chemicals, including some phthalate plasticizers, are weakly estrogenic. *Environ Health Perspect* 103(6):582-587.

Singh AR, Lawrence WH, Autian J. 1975. Dominant lethal mutations and antifertility effects of di-2-ethylhexyl adipate and diethyl adipate in male mice. *Toxicol Appl Pharmacol* 32(3):566-576.

USE REFERENCES

National Pesticide Information Retrieval System. [<http://ppis.ceris.purdue.edu/Default.aspx>].

Orem WH, Tatu CA, Lerch HE, Rice CA, Bartos TT, Bates AL, Tewalt S, Corum MD. 2007. Organic compounds in produced waters from coalbed natural gas wells in the Powder River Basin, Wyoming, USA. *Appl Geochem* 22(10):2240-2256.

US Dept of Health & Human Services. Household Products Database. [<http://hpdb.nlm.nih.gov/>].

US EPA. InertFinder. [<http://iaspub.epa.gov/apex/pesticides/f?p=175:1>].

US National Library of Medicine. Haz-Map. [<http://hazmap.nlm.nih.gov/index.php>].

US National Library of Medicine. Hazardous Substances Data Bank. [<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>].

DATE ADDED: May 5, 2011 **DATE UPDATED:** March 20, 2017

117-81-7 di(2-ethylhexyl)phthalate

ALTERNATIVE NAMES: DEHP, bis (2-ethylhexyl) phthalate, phthalic acid di- (2-ethyl-hexyl) ester, di-sec-octyl phthalate

CATEGORIES OF USE: Household product ingredient, Industrial additive, Medical/Veterinary/Research, Personal care product/Cosmetic ingredient, Pesticide ingredient, Plastic/Rubber, Unconventional Oil and Gas

ENDOCRINE DISRUPTOR REFERENCES

Gray LE Jr., Wolf C, Lambright C, Mann P, Price M, Cooper RL, Ostby J. 1999. Administration of potentially antiandrogenic pesticides (procymidone, linuron, iprodione, chlozolinate, p,p'-DDE, and ketoconazole) and toxic substances (dibutyl- and diethylhexyl phthalate, PCB 169, and ethane dimethane sulphonate) during sexual differentiation produces diverse profiles of reproductive malformations in the male rat. *Toxicol Ind Health* 15(1-2):94-118.

Ishihara A, Sawatsubashi S, Yamauchi K. 2003. Endocrine disrupting chemicals: interference of thyroid hormone binding to transthyretins and to thyroid hormone receptors. *Mol Cell Endocrinol* 199(1-2):105-117.

Lampen A, Zimnik S, Nau H. 2003. Teratogenic phthalate esters and metabolites activate the nuclear receptors PPARs and induce differentiation of F9 cells. *Toxicol Appl Pharmacol* 188(1):14-23, DOI: 10.1016/S0041-008X(03)00014-0.

Lu KY, Tseng FW, Wu CJ, Liu PS. 2004. Suppression by phthalates of the calcium signaling of human nicotinic acetylcholine receptors in human neuroblastoma

SH-SY5Y cells. Toxicology 200(2-3):113-121.

Poon R, Lecavalier P, Mueller R, Valli VE, Procter BG, Chu I. 1997. Subchronic oral toxicity of di-n-octyl phthalate and di(2-ethylhexyl) phthalate in the rat. Food & Chemical Toxicology 35(2):225-239.

USE REFERENCES

Drollette BD, Hoelzer K, Warner NR, Darrah TH, Karatum O, O'Connor MP, Nelson RK, Fernandez LA, Reddy CM, Vengosh A, et al. 2015. Elevated levels of diesel range organic compounds in groundwater near Marcellus gas operations are derived from surface activities. Proc Natl Acad Sci U S A 112(43):13184-13189.

Maguire-Boyle SJ, Barron AR. 2014. Organic compounds in produced waters from shale gas wells. Environ Sci Process Impacts 16(10):2237-2248.

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US Dept of Health & Human Services. Household Products Database. [<http://hpdb.nlm.nih.gov/>].

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US National Library of Medicine. Haz-Map. [<http://hazmap.nlm.nih.gov/index.php>].

US National Library of Medicine. Hazardous Substances Data Bank. [<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>].

DATE ADDED: July 15, 2011 **DATE UPDATED:** March 20, 2017

4376-20-9 mono-2-(ethylhexyl)phthalate

ALTERNATIVE NAMES: MEHP, mono (2-ethylhexyl) phthalate

CATEGORY OF USE: Metabolite/Degradate

ENDOCRINE DISRUPTOR REFERENCES

Hurst CH, Waxman DJ. 2003. Activation of PPARalpha and PPARgamma by environmental phthalate monoesters. Toxicol Sci 74(2):297-308.

Lampen A, Zimnik S, Nau H. 2003. Teratogenic phthalate esters and metabolites activate the nuclear receptors PPARs and induce differentiation of F9 cells. Toxicol Appl Pharmacol 188(1):14-23, DOI: 10.1016/S0041-008X(03)00014-0.

Lloyd SC, Foster PMD. 1988. Effect of mono-(2-ethylhexyl)phthalate on follicle-stimulating hormone responsiveness of cultured rat Sertoli cells. Toxicol Appl Pharmacol 95(3):484-489.

Thysen B, Morris PL, Gatz M, Bloch E. 1990. The effect of mono(2-ethylhexyl) phthalate on Sertoli cell transferrin secretion in vitro. *Toxicol Appl Pharmacol* 106(1):154-157.

Treinen KA, Dodson WC, Heindel JJ. 1990. Inhibition of FSH-stimulated cAMP accumulation and progesterone production by mono(2-ethylhexyl) phthalate in rat granulosa cell cultures. *Toxicol Appl Pharmacol* 106(2):334-340.

USE REFERENCES

Itoh H, Yoshida K, Masunaga S. 2007. Quantitative identification of unknown exposure pathways of phthalates based on measuring their metabolites in human urine. *Environ Sci Technol* 41(13):4542-4547, doi: 10.1021/es062926y.

DATE ADDED: July 15, 2011

118-60-5 octyl salicylate

ALTERNATIVE NAMES: octisalate, 2-ethylhexyl salicylate

CATEGORY OF USE: Personal care product/Cosmetic ingredient

ENDOCRINE DISRUPTOR REFERENCES

Kunz PY, Fent K. 2006. Multiple hormonal activities of UV filters and comparison of in vivo and in vitro estrogenic activity of ethyl-4-aminobenzoate in fish. *Aquat Toxicol* 79(4):305-324.

Kunz PY, Galicia HF, Fent K. 2006. Comparison of in vitro and in vivo estrogenic activity of UV filters in fish. *Toxicol Sci* 90(2):349-361

USE REFERENCES

ChemIDPlus Lite. [<https://chem.nlm.nih.gov/chemidplus/chemidlite.jsp>].

DATE ADDED: January 20, 2017

21245-02-3 octyl-dimethyl-p-aminobenzoic acid

ALTERNATIVE NAMES: OD-PABA, octyl-dimethyl-p-aminobenzoate, padimate O, 2-ethylhexyl p-dimethylaminobenzoate, 4- (dimethylamino) benzoic acid , 2-ethylhexyl ester

CATEGORIES OF USE: Personal care product/Cosmetic ingredient, Pesticide ingredient

ENDOCRINE DISRUPTOR REFERENCES

Kunz PY, Fent K. 2006. Multiple hormonal activities of UV filters and comparison of in vivo and in vitro estrogenic activity of ethyl-4-aminobenzoate in fish. *Aquat Toxicol* 79(4):305-324.

Schlumpf M, Cotton B, Conscience M, Haller V, Steinmann B, Lichtensteiger W. 2001. In vitro and in vivo estrogenicity of UV screens. *Environ Health Perspect* 109(3):239-244.

USE REFERENCES

US Dept of Health & Human Services. Household Products Database. [<http://hpdb.nlm.nih.gov/>].

US EPA. InertFinder. [<http://iaspub.epa.gov/apex/pesticides/f?p=175:1>].

US National Library of Medicine. Haz-Map. [<http://hazmap.nlm.nih.gov/index.php>].

DATE ADDED: May 5, 2011 **DATE UPDATED:** September 23, 2013

78-42-2 tris(2-ethylhexyl)phosphate

ALTERNATIVE NAMES: TEHP, trioctyl phosphate

CATEGORIES OF USE: Flame retardant, Industrial additive, Plastic/Rubber, Solvent

ENDOCRINE DISRUPTOR REFERENCES

Kojima H, Takeuchi S, Itoh T, Iida M, Kobayashi S, Yoshida T. 2013. In vitro endocrine disruption potential of organophosphate flame retardants via human nuclear receptors. *Toxicology* 314(1):76-83. DOI: 10.1016/j.tox.2013.09.004.

USE REFERENCES

US National Library of Medicine. Hazardous Substances Data Bank. [<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>].

DATE ADDED: November 2, 2015 **DATE UPDATED:** November 2, 2015