

SCREENING-LEVEL HAZARD CHARACTERIZATION

2-Hydroxy-4-n-octoxybenzophenone (CASRN 1843-05-6)

The High Production Volume (HPV) Challenge Program¹ was conceived as a voluntary initiative aimed at developing and making publicly available screening-level health and environmental effects information on chemicals manufactured in or imported into the United States in quantities greater than one million pounds per year. In the Challenge Program, producers and importers of HPV chemicals voluntarily sponsored chemicals; sponsorship entailed the identification and initial assessment of the adequacy of existing toxicity data/information, conducting new testing if adequate data did not exist, and making both new and existing data and information available to the public. Each complete data submission contains data on 18 internationally agreed to “SIDS” (Screening Information Data Set^{1,2}) endpoints that are screening-level indicators of potential hazards (toxicity) for humans or the environment.

The Environmental Protection Agency’s Office of Pollution Prevention and Toxics (OPPT) is evaluating the data submitted in the HPV Challenge Program on approximately 1400 sponsored chemicals by developing hazard characterizations (HCs). These HCs consist of an evaluation of the quality and completeness of the data set provided in the Challenge Program submissions. They are not intended to be definitive statements regarding the possibility of unreasonable risk of injury to health or the environment.

The evaluation is performed according to established EPA guidance^{2,3} and is based primarily on hazard data provided by sponsors; however, in preparing the hazard characterization, EPA considered its own comments and public comments on the original submission as well as the sponsor’s responses to comments and revisions made to the submission. In order to determine whether any new hazard information was developed since the time of the HPV submission, a search of the following databases was made from one year prior to the date of the HPV Challenge submission to the present: (ChemID to locate available data sources including Medline/PubMed, Toxline, HSDB, IRIS, NTP, ATSDR, IARC, EXTOXNET, EPA SRS, etc.), STN/CAS online databases (Registry file for locators, ChemAbs for toxicology data, RTECS, Merck, etc.) and Science Direct. OPPT’s focus on these specific sources is based on their being of high quality, highly relevant to hazard characterization, and publicly available.

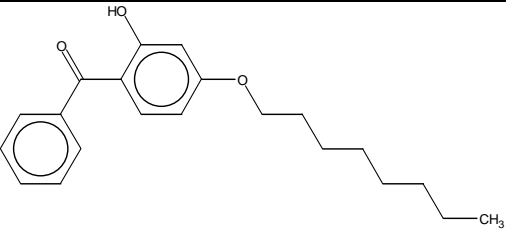
OPPT does not develop HCs for those HPV chemicals which have already been assessed internationally through the HPV program of the Organization for Economic Cooperation and Development (OECD) and for which Screening Initial Data Set (SIDS) Initial Assessment Reports (SIAR) and SIDS Initial Assessment Profiles (SIAP) are available. These documents are presented in an international forum that involves review and endorsement by governmental authorities around the world. OPPT is an active participant in these meetings and accepts these documents as reliable screening-level hazard assessments.

¹ U.S. EPA. High Production Volume (HPV) Challenge Program; <http://www.epa.gov/chemrtk/index.htm>.

² U.S. EPA. HPV Challenge Program – Information Sources; <http://www.epa.gov/chemrtk/pubs/general/guidocs.htm>.

³ U.S. EPA. Risk Assessment Guidelines; <http://cfpub.epa.gov/ncea/raf/rafguid.cfm>.

These hazard characterizations are technical documents intended to inform subsequent decisions and actions by OPPT. Accordingly, the documents are not written with the goal of informing the general public. However, they do provide a vehicle for public access to a concise assessment of the raw technical data on HPV chemicals and provide information previously not readily available to the public.

<p>Chemical Abstract Service Registry Number (CASRN)</p>	<p>1843-05-6</p>
<p>Chemical Abstract Index Name</p>	<p>Methanone, [2-hydroxy-4-(octyloxy)phenyl]phenyl-</p>
<p>Structural Formula</p>	
<p style="text-align: center;">Summary</p> <p>CASRN 1843-05-6 is a solid with negligible water solubility and low vapor pressure. It is expected to have low mobility in soil. Volatilization is considered low based on the estimated Henry's Law constant of this substance. The rate of hydrolysis is considered negligible. The rate of atmospheric photooxidation is considered rapid. CASRN 1843-05-6 is judged to have low (P1) persistence and low (B1) bioaccumulation potential.</p> <p>The acute oral toxicity of CASRN 1843-05-6 in rats is low. Dietary exposure of rats to CASRN 1843-05-6 for 14 weeks resulted in kidney effects in males at 100 mg/kg-bw/day (lowest dose tested); a NOAEL was not established. Two 3-month dietary studies in rats showed no adverse effects at 75 and 900 mg/kg-bw/day, the highest doses tested. In a 30-day dietary study in rats, hematuria was seen at approximately 1220 mg/kg-bw/day (the lowest dose tested); a NOAEL was not established. In Beagle dogs, dietary exposure to CASRN 1843-05-6 for 124-127 days showed no effects at 150 mg/kg-bw/day, the highest dose tested. No adequate reproductive or developmental toxicity studies are available. CASRN 1843-05-6 did not induce gene mutations in bacteria or chromosomal aberrations in human lymphocytes <i>in vitro</i>. CASRN 1843-05-6 is a skin sensitizer based on two guinea pig maximization assays.</p> <p>The 96-hour LC₅₀ of CASRN 1843-05-3 for fish is = 0.003 mg/L. The 48-hour EC₅₀ of CASRN 1843-05-3 for aquatic invertebrates is = 0.003 mg/L. The 72-hour EC₅₀ of CASRN 1843-05-3 for aquatic plants = 0.002 mg/L. The estimated 21-day chronic value of CASRN 1843-05-6 for aquatic invertebrates is 0.005 mg/L.</p> <p>Reproductive, developmental and chronic aquatic invertebrate toxicity are identified as data gaps under the HPV Challenge Program.</p>	

The sponsor, Cytec Industries Inc., submitted a Test Plan and Robust Summaries to EPA for 2-hydroxy-4-n-octoxybenzophenone (CASRN 1843-05-6; CA index name: methanone, [2-hydroxy-4-(octyloxy)phenyl]phenyl- on October 10, 2001. EPA posted the submission on the ChemRTK HPV Challenge website on November 14, 2001

(<http://www.epa.gov/chemrtk/pubs/summaries/2hydrox/c13209tc.htm>). EPA comments on the original submission were posted to the website on August 28, 2002. Public comments were also received and posted to the website. The sponsor submitted updated/revised documents on June 24, 2002, which were posted to the ChemRTK website (posting date not indicated). Additional revisions were submitted by the sponsor on April 21, 2008 and were posted on June 13, 2008.

1. Chemical Identity

1.1 Identification and Purity

Although one 90-day repeated-dose toxicity study appeared to use a batch of the test substance that was 99% pure, information on purity was not included anywhere else in the test plan or robust summaries.

1.2 Physical-Chemical Properties

The physical-chemical properties of CASRN 1843-05-6 are summarized in Table 1. This chemical is a solid at room temperature with negligible water solubility and low vapor pressure.

Table 1. Physical-Chemical Properties of CASRN 1843-05-6¹	
Property	Value
CASRN	1843-05-6
Molecular Weight	326.42
Physical State	Pale, cream-to-white powder with friable lumps
Melting Point	48–49°C (measured)
Boiling Point	>300°C decomposes (measured); 175-180°C at 0.1 mm Hg (measured) ⁴ ; 200-203°C at 3 mm Hg (measured) ⁵
Vapor Pressure	6.9×10^{-8} mm Hg at 25°C (estimated) ²
Water Solubility	$< 7.3 \times 10^{-4}$ mg/L at 20°C (measured)
Dissociation Constant (pK _a)	10.15 (estimated) ³
Henry's Law Constant	1.1×10^{-7} atm·m ³ /mole (estimated) ²
Log K _{ow}	6.96 (estimated)

¹Cytec Industries Inc and the Ciba Specialty Chemicals Corporation . April 23, 2008. Revised Roust Summary and Test Plan for Methanone, [2-Hydroxy-4-(Octyloxy)phenyl]phenyl-.

<http://www.epa.gov/chemrtk/pubs/summaries/2hydrox/c13209tc.htm>.

²U.S.EPA. 2009. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. <http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm>.

³SPARC. 2009. Online pKa and Property Calculator v. 4.2.1405-s4.2.1408. Accessed February 20, 2009.

<http://ibmlc2.chem.uga.edu/sparc/index.cfm?CFID=32727&CFTOKEN=65477992>.

⁴Jakschin; Mirochin. Patent: SU365352, 1973.

⁵Holcik et al. Patent: CS121088, 1965.

2. General Information on Exposure

2.1 Production Volume and Use Pattern

According to the 2006 IUR submissions, CASRN 1843-05-6 had an aggregated production and/or import volume in the United States between 1 and 10 million pounds.

Non-confidential information in the IUR indicated that the industrial processing and uses of the chemical include “other” plastics product manufacturing as adsorbents and absorbents. Non-confidential commercial and consumer uses of this chemical include rubber and plastic products.

2.2 Environmental Exposure and Fate

The environmental fate properties of CASRN 1843-05-6 are provided in Table 2. CASRN 1843-05-6 is expected to have low mobility in soil. It was not readily biodegradable using a modified MITI test (OECD 301C) and a modified Sturm test (OECD 301B). The lack of solubility of this compound may limit the ability of these tests to accurately measure the rate of ultimate biodegradation; however based on its chemical structure, this compound is expected to biodegrade. Volatilization of this chemical is considered low based on the estimated Henry's Law constant. The rate of hydrolysis is considered negligible. CASRN 1843-05-6 is judged to have low (P1) persistence and low (B1) bioaccumulation potential.

Table 2. Environmental Fate Characteristics of CASRN 1843-05-6 ¹	
Property	Value
Photodegradation Half-life	0.59 hours (estimated)
Hydrolysis Half-life	>1 year at pH 4, 7, and 9 at 25°C (measured)
Biodegradation	5–6% after 28 days (not readily biodegradable); 0% in 14 days (not readily biodegradable)
Bioconcentration	BCF = 89–190 (measured in carp at 2 ppb) ² ; BCF = 99 (measured in carp at 0.2 ppb) ²
Bioaccumulation Factor	BAF = 380.7 (estimated) ³
Log K _{oc}	4.8 (estimated) ³
Fugacity (Level III Model)	
Air (%)	0.09
Water (%)	8.2
Soil (%)	29.5
Sediment (%)	62.2
Persistence ⁴	P1 (low)
Bioaccumulation ⁴	B1 (low)

¹Cytec Industries Inc and the Ciba Specialty Chemicals Corporation . April 23, 2008. Revised Roust Summary and Test Plan for Methanone, [2-Hydroxy-4-(Octyloxy)phenyl]phenyl-.
<http://www.epa.gov/chemrtk/pubs/summaries/2hydrox/c13209tc.htm>.

²National Institute of Technology and Evaluation. 2002. Biodegradation and Bioaccumulation of the Existing Chemical Substances under the Chemical Substances Control Law.
http://www.safe.nite.go.jp/english/kizon/KIZON_start_hazkizon.html.

³U.S.EPA. 2009. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. <http://www.epa.gov/opptintr/exposure/pubs/episutedl.htm>.

⁴Federal Register. 1999. Category for Persistent, Bioaccumulative, and Toxic New Chemical Substances. *Federal Register* 64, Number 213 (November 4, 1999) pp. 60194–60204.

3. Human Health Hazard

The human health data are summarized in Table 3.

Acute Oral Toxicity

Ten Nelson albino male rats were administered a single dose of 10,000 mg/kg as a 20% aqueous dispersion by oral gavage. Following a 7-day observation period, there was no mortality.

LD₅₀ > 10,000 mg/kg

Repeated-Dose Toxicity

(1) CASRN 1843-05-6 was fed to albino rats (10/sex/dose) at 0, 0.2, 2.0 and 5.0% (approximately 0, 100, 1000 and 2500 mg/kg-bw/day⁴) in the diet for 14 weeks. Body weights, food consumption, hematological data, biochemistry, organ weights and histopathology were evaluated. At 5.0%, all animals had poor appearances after a few days; 3 males and 4 females died within 3 weeks. After 14 weeks, females had decreased body weights at 2.0% (p<0.01) and 5.0% (p<0.001), whereas in males, this effect was significant at 5.0% only (p<0.05). Food

consumption was decreased at the two highest doses (both sexes) during the first month and at weeks 11 and 12 (females). At 5.0% and 2.0%, hemoglobin content was decreased in both sexes ($p < 0.05$, < 0.01 or < 0.001). Females also showed decreases in packed cell volume and erythrocyte counts at the highest two doses ($p < 0.05$ or < 0.01 depending on effect and dose), whereas these effects were decreased in males only at 5.0% ($p < 0.05$ or < 0.01). Glucose-6-phosphatase activity showed a dose-dependent increase in the liver (but not in the kidney) beginning at 0.2%. Increases in relative kidney weights were seen in males at all doses ($p < 0.01$ or < 0.001) and in females at 2.0 and 5.0% ($p < 0.001$). Increased liver weights were seen in both sexes at 2.0 and 5.0% ($p < 0.001$). Males showed some increases in relative pituitary and thyroid weights, which were statistically significant at only some doses. Relative adrenal weights showed a dose-related increase in females ($p < 0.05$, < 0.01 or < 0.001 depending on dose). Females exhibited increased relative thyroid weights at all doses (not statistically significant). The increases in relative testicle weights ($p < 0.01$) at 5.0% in males and relative brain weights at the two highest doses ($p < 0.01$) in females may have been related to decreased body weights.

Both sexes had visibly enlarged discolored kidneys and livers, yellowish-white urinary calculi in both the renal pelvis and urinary bladder at the two highest doses. The bladder mucosa was often thickened. Microscopically, males and females showed toxic tubular nephrosis, unilateral hydronephrosis, hyperplastic urothelium, crystals in the renal pelvis and inflammation and other phenomena in the bladder at 2.0 and 5.0%. Males also exhibited a low frequency and severity of toxic tubular nephrosis at 0.2%. Hepatocytes exhibited homogeneous cytoplasm, slightly enlarged parenchymal cells in both sexes at 5.0% and in males at 2.0%, which may have been due to increased liver function, but no definite or consistent hepatic damage was observed upon microscopy. One female exhibited necrosis and infiltrates of mononuclear cells in the adrenal gland at the highest dose (TSCATS – OTS0539100).

LOAEL (males) ~ 100 mg/kg-bw/day (based on tubular nephrosis in males)

NOAEL (males) = Not established

LOAEL (females) ~ 1000 mg/kg-bw/day (based on multiple kidney/bladder effects)

NOAEL (females) ~100 mg/kg-bw/day

(2) The test material was fed to Wistar rats (10/sex/dose) in the diet at 0, 0.065, 0.1 or 0.15% (approximately 0, 32.5, 50 or 75 mg/kg-bw/day⁴) for 3 months. Body weights, food consumption, hematology, biochemistry, organ weights, macroscopic and histological evaluations were conducted. Dietary administration resulted in slightly increased relative kidney weights in females at 0.15% and relative thyroid weights in males at 0.1 and 0.15%. Statistical significance was not stated and gross and microscopic examinations revealed no corroborative pathological changes.

NOAEL ~ 75 mg/kg-bw/day (highest dose tested)

(3) The test material was fed to Nelson albino rats (20/sex/dose) at dietary levels of 0, 0.2, 0.6 or 1.8% (approximately 0, 100, 300 or 900 mg/kg-bw/day⁴) for 3 months. Animals were examined for body weight, food consumption, hematology at week 11, organ weights, gross pathology and histopathology. In females, mean kidney weights were significantly decreased at 0.2% and slightly increased at 1.8%. In males, there was a significant increase in kidney weights at 1.8%.

NOAEL ~ 900 mg/kg-bw/day (highest dose tested)

⁴ Assumes 1 ppm in food = 0.050 mg/kg-bw/day (young rats) (Lehman, 1954)

(4) Test material was fed to Nelson albino rats (10 males/dose) in the diet at 0, 1.25, 2.5 or 5.0% (approximately 0, 1220, 2290 or 4780 mg/kg-bw/day) for 30 days. Body weight, food consumption and gross necropsy were evaluated. It is not apparent that clinical chemistry, hematology, urinalysis or histopathology were evaluated. Animals at 2.5 and 5.0% had poor general appearance. Dietary administration resulted in significantly decreased mean weight gain at 2.5 and 5.0% and decreased food intake at 2.5%. One rat died at 5.0%. Animals at all doses exhibited hematuria upon gross examination. At necropsy, 2.5 and 5.0% animals had yellow masses in the renal tubules of kidneys and in the urinary bladders. The study summary noted that these masses were believed to be glucuronides.

LOAEL ~ 1220 mg/kg-bw/day (based on hematuria)

NOAEL = Not established

(5) The test material was initially fed to Beagle dogs (2/sex/dose) at dietary levels of 0, 0.2, 0.6 or 1.8% (approximately 0, 50, 150 or 450 mg/kg-bw/day⁵), but due to the unpalatability of the 1.8% dietary level, it was reduced to 0.4% (approximately 100 mg/kg-bw/day) at the end of week 2. Feeding lasted for 124 – 127 days. Clinical signs, body weights, hematology, clinical chemistry, organ weights, gross pathology, and histopathology were evaluated. The summary reported no significant test article-related effects.

NOAEL ~ 150 mg/kg-bw/day (highest dose tested)

Reproductive Toxicity

According to EPA, the submitted 4-generation reproductive toxicity study is inadequate because only a single dose was tested that was below the limit dose specified by EPA and OECD test guidelines. In addition, the information in the robust summary was limited. However, for completion, the study is described below.

In a 4-generation reproductive toxicity study, albino rats (16/sex/dose) in the F0 generation were administered CASRN 1843-05-6 in the diet at 0 or 0.6% (~524 or 614 mg/kg-bw/day (males/females)) upon weaning. Pups were weaned directly onto the diets received by the F0 generation (presumably with the test substance included). The F1 generation was mated to produce the F2 generation; the F2 generation produced two sets of litters (F3a and F3b); and the F3b generation produced the F4 generation. Only the F3a generation was examined for microscopic pathology and skeletal changes; otherwise, abnormal reactions and deaths were recorded daily. In addition, body weights were evaluated periodically for all generations and food consumption was measured prior to mating in the F0 generation. Fertility, gestation, viability and lactation indices were also evaluated. Numbers of live births, number of pups weaned and gross defects were also noted. The study summary notes there were no lesions in the parents; however, no other endpoints were discussed. No treatment-related changes in reproductive endpoints were seen.

⁵ Assumes 1 ppm = 0.025 mg/kg-bw/day (Lehman, 1954)

Developmental Toxicity

As noted under the Reproductive Toxicity section, the submitted 4-generation reproductive toxicity study is inadequate. However, for completion, the developmental endpoints from this study are described below.

In the 4-generation reproductive toxicity study discussed in the reproductive toxicity section, no lesions were seen in the parents; however, the robust summary does not discuss whether other parental effects were observed. Pups from the test group were slightly heavier than the controls. No other treatment-related effects were noted except three treated pups (generation not indicated) were sacrificed at 12 days of age after the mother had eaten their littermates. These pups had reduced length of all bones compared with controls.

Genetic Toxicity – Gene Mutations

In vitro

(1) CASRN 1843-05-6 was tested at concentrations of 100, 333, 1000, 2500 and 5000 µg/plate in *Salmonella typhimurium* strains TA98, TA100, TA1535 and TA1537 and *Escherichia coli* WP-2 uvrA in the presence and absence of metabolic activation. Information on positive and negative controls and cytotoxicity was not provided. The summary noted precipitate on plates at 2500 and 5000 µg/plate.

CASRN 1843-05-6 was not mutagenic in this assay.

(2) CASRN 1843-05-6 was tested in *S. typhimurium* strains TA98, TA100, TA1535 and TA1537 in the presence and absence of metabolic activation. The summary did not report test concentrations. Information on positive and negative controls and cytotoxicity was not provided.

CASRN 1843-05-6 was not mutagenic in this assay.

Genetic Toxicity – Chromosomal Aberrations

In vitro

Human lymphocytes were exposed to 0, 51, 102, 204, 408, 612 or 816 µg/mL of the test substance with and without metabolic activation. Positive and negative controls were included and the response to positive controls was appropriate. Treatment conditions were one of the following: 4 hours in the presence of metabolic activation with cell harvest after 20 hours, 4 hours in the absence of metabolic activation with cell harvest after 20 hours or 4 hours in the absence of metabolic activation with cell harvest at 24 hours. The study summary reported that test material precipitate was seen at 816 µg/mL in the 4-hour exposure group without metabolic activation.

CASRN 1843-05-6 did not induce chromosomal aberrations in this assay.

Additional Information

Skin Sensitization

(1) The test substance was administered using a maximization protocol to 10 pigmented white guinea pigs/sex. The induction period included an intradermal injection of 5% and an epidermal application (30%) one week later. During week 5, animals received a challenge dose of 20% epidermally. The control group consisted of 5 animals/sex. A total of 65 and 60% of the animals were sensitized 24 and 48 hours after challenge, respectively.

CASRN 1843-05-6 was a skin sensitizer in this assay.

(2) The test substance was administered using a maximization protocol to 10 female albino guinea pigs. The induction period included an intradermal injection of 15% in PEG 300 with Freund's Complete Adjuvant (FCA)/saline. An epidermal application (40%) was made one week later for 48 hrs; 10% sodium-lauryl-sulfate (SLS) was used 23 hours prior to application. The control group consisted of 5 females that were intradermally induced with PEG300 and FCA/saline and epidermally induced with PEG300 following pretreatment with 10% SLS. Challenge occurred two weeks after epidermal induction with another epidermal application at 40% of the test substance in PEG 300 or in PEG 300 alone. One animal in the test group died 2 days after epidermal induction. The control group did not exhibit any sensitization reactions when challenged with the test substance, whereas 7 of 9 females in the test group induced with CASRN 1843-05-6 exhibited discreet/patchy to moderate/confluent erythema at 24 and 48 hrs after challenge.

CASRN 1843-05-6 was a skin sensitizer in this assay.

Conclusion: The acute oral toxicity of CASRN 1843-05-6 in rats is low. Dietary exposure of rats to CASRN 1843-05-6 for 14 weeks resulted in kidney effects in males at 100 mg/kg-bw/day (lowest dose tested); a NOAEL was not established. Two 3-month dietary studies in rats showed no adverse effects at 75 and 900 mg/kg-bw/day, the highest doses tested. In a 30-day dietary study in rats, hematuria was seen at approximately 1220 mg/kg-bw/day (the the lowest dose tested); a NOAEL was not established. In Beagle dogs, dietary exposure to CASRN 1843-05-6 for 124-127 days showed no effects at 150 mg/kg-bw/day, the highest dose tested. No adequate reproductive or developmental toxicity studies are available. CASRN 1843-05-6 did not induce gene mutations in bacteria or chromosomal aberrations in human lymphocytes *in vitro*. CASRN 1843-05-6 is a skin sensitizer based on two guinea pig maximization assays.

Table 3. Summary of the Screening Information Data Set under the U.S. HPV Challenge Program – Human Health Data	
Endpoints	2-Hydroxy-4-n-Octoxybenzophenone (CASRN 1843-05-6)
Acute Oral Toxicity LD₅₀ (mg/kg)	> 10,000
Repeated-Dose Toxicity NOAEL/LOAEL (mg/kg-bw/day)	NOAEL = Not established LOAEL ~ 100
Reproductive Toxicity	Data gap
Developmental Toxicity	Data gap
Genetic Toxicity – Gene Mutations <i>in vitro</i>	Negative
Genetic Toxicity – Chromosomal Aberrations <i>in vitro</i>	Negative
Additional Information Skin Sensitization	Positive

4. Hazard to the Environment

Acute Toxicity to Fish

Rice fish (*Oryzias latipes*) were exposed to CASRN 1843-05-6 at a measured concentration of 0.005 mg/L (limit test) for 96 hours under flow-through conditions. The solvent DMF was used. Water quality parameters were monitored throughout the test. A 96-hour LC₅₀ of 0.0036 mg/L was reported.

96-h LC₅₀ = 0.0036 mg/L

Acute Toxicity to Aquatic Invertebrates

Water fleas (*Daphnia magna*) were exposed to CASRN 1843-05-3 at a measured concentration of 0.005 mg/L (limit test) for 48 hours under semi-static renewal conditions. The solvent DMF was used. Water quality parameters were monitored throughout the test. A 48-hour EC₅₀ of 0.0038 was reported.

48-h EC₅₀ – 0.003 mg/L

Toxicity to Aquatic Plants

Green algae (*Pseudokirchneriella subcapitata*) were exposed to CASRN 1843-05-3 at a measured concentration of 0.014 mg/L (limit test) for 72 hours under static conditions. The acetone and DMF was used. Water quality parameters were monitored throughout the test. A 72-hour EC₅₀ of 0.002 was reported.

72-hr EC₅₀ = 0.002 (Biomass)

Chronic Toxicity to Aquatic Invertebrates

No adequate data were available. ECOSAR v. 1.00a was used to estimate acute toxicity to CASRN 1843-05-6.

21-day Aquatic Invertebrate = 0.005 mg/L (ECOSAR v. 1.00a)

Conclusion: The 96-hour LC₅₀ of CASRN 1843-05-3 for fish is = 0.003 mg/L. The 48-hour EC₅₀ of CASRN 1843-05-3 for aquatic invertebrates is = 0.003 mg/L. The 72-hour EC₅₀ of CASRN 1843-05-3 for aquatic plants = 0.002 mg/L. The estimated 21-day chronic value of CASRN 1843-05-6 for aquatic invertebrates is 0.005 mg/L.

A chronic aquatic invertebrate toxicity test is recommended because the chemical's estimated Log K_{ow} value is > 6.

Table 4. Summary of the Screening Information Data Set under the U.S. HPV Challenge Program – Aquatic Toxicity Data	
Endpoints	2-Hydroxy-4-n-Octoxybenzophenone (CASRN 1843-05-6)
Fish 96-h LC₅₀ (mg/L)	0.003
Aquatic Invertebrates 48-h EC₅₀ (mg/L)	0.003
Aquatic Plants 72-h EC₅₀ (mg/L) (biomass)	0.002
Chronic Toxicity to Aquatic Invertebrates 21-d EC₅₀	0.005 (e)

Bold = measured data; (e) = estimated data

Reference

Lehman, A.J. 1954. Association of Food and Drug Officials Quarterly Bulletin. 18:66.

Japan Ministry of the Environment in 2006. The Aquatic Toxicity Effects of 2-hydroxy-4-n-octoxybenzophenone on *Oryzias latipes*, *Daphnia magna*, and *Pseudokirchneriella subcapitata*. (Unpublished Data).