Assessment of regulatory needs

Authority: ECHA

Date: 15 November 2020

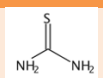
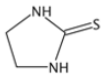
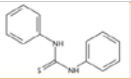
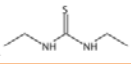
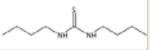
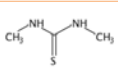
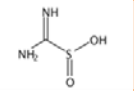
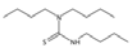
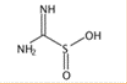
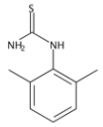
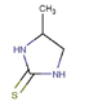
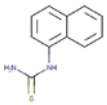
Group Name: Thioureas

General structure: -

Revision history

Version	*Date*	*Description*
1.0	15 November 2020	

Substances within this group:

EC number	CAS number	Substance name [and substance name acronyms]	Chemical structure	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y) [1]
200-543-5	62-56-6	Thiourea; Thiocarbamide (TU)		Full, 100-1000
202-506-9	96-45-7	Imidazolidine-2-thione (ETU)		Full, 100-1000
203-004-2	102-08-9	1,3-diphenyl-2-thiourea (DPTU)		Full, not (publicly) available
203-308-5	105-55-5	1,3-diethyl-2-thiourea (DETU)		Full, not (publicly) available
203-674-6	109-46-6	1,3-dibutyl-2-thiourea (DBTU)		Full, not (publicly) available
208-588-2	534-13-4	1,3-dimethyl-2-thiourea (DMTU)		Not (publicly) available
217-157-8	1758-73-2	Aminoiminomethane sulphinic acid (OxTU)		Full, > 1000
219-350-2	2422-88-0	Tributyl-2-thiourea (TBTU)		Full, not (publicly) available
224-065-1	4189-44-0	Thiourea S,S-dioxide* (DTU)		Not (publicly) available
229-005-8	6396-76-5	1-(2,6-xylyl)thiourea (XTU)		OSII or TII, not (publicly) available
620-432-9	2122-19-2	Propylenethiourea (PTU)		Not (publicly) available
201-706-3	86-88-4	Antu, 1-(1-naphthyl)-2-thiourea (NTU)		Not (publicly) available

(*) the substance is regarded by CAS Registry as identical with EC 217-157-8

This table contains also group members that are only notified under the CLP Regulation. However, the list is currently non-exhaustive. Should further regulatory risk management action on one or more substances in the group be considered, ECHA may make an additional search for related C&L notified substances to be included in the group and develop an assessment of regulatory needs for them.

[1] Note that the total aggregated tonnage band may be available on ECHA's webpage at https://echa.europa.eu/information-on-chemicals/registered-substances

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The author does not accept any liability with regard to the use that may be made of the information contained in this document. Usage of the information remains under the sole responsibility of the user. Statements made or information contained in the document are without prejudice to any further regulatory work that ECHA, the Member States or other regulatory agencies may initiate at a later stage. Assessment of regulatory needs and their conclusions are compiled on the basis of available information and may change in light of newly available information or further assessment.

Foreword

The purpose of the assessment of regulatory needs of a group of substances is to help authorities conclude on the most appropriate way to address the identified concerns for a group of substances or a single substance, i.e. the combination of the regulatory risk management instruments to be used and any intermediate steps, such as data generation, needed to initiate and introduce these regulatory measures.

An assessment of regulatory needs can conclude that regulatory risk management at EU level is required for a (group of) substance(s) (e.g. harmonised classification and labelling, Candidate List inclusion, restriction, other EU legislation) or that no regulatory action is required at EU level. While the assessment is done for a group of substances, the (no) need for regulatory action can be identified for the whole group, a subgroup or for single substance(s).

The assessment of regulatory needs is an important step under ECHA's Integrated Regulatory Strategy. However, it is not part of the formal processes defined in the legislation but aims to support them.

The assessment of regulatory needs can be applied to any group of substances or single substance, i.e., any type of hazards or uses and regardless of the previous regulatory history or lack of such. It can be done based on different level of information. A Member State or ECHA can carry out this case-by-case analysis. The starting point is available information in the REACH registrations and any other REACH and CLP information. However, more extensive set of information can be available, e.g. assessment done under REACH/CLP or other EU legislation, or can be generated in some cases (e.g. further hazard information under dossier evaluation). Uncertainties associated to the level of information used should be reflected in the documentation. It will be revisited when necessary. For example, after further information is generated and the hazard has been clarified or when new insights on uses are available. It can be revisited by the same or another authority.

The responsibility for the content of this assessment rests with the authority that developed it. It is possible that other authorities do not have the same view and may develop further assessment of regulatory needs. The assessment of regulatory needs does not yet initiate any regulatory process but any authority can consequently do so and should indicate this by appropriate means, such as the Registry of Intentions.

For more information on Assessment of regulatory needs please ECHA website[2].

[2] https://echa.europa.eu/understanding-assessment-regulatory-needs

Glossary

CCH	Compliance Check
CLH	Harmonised classification and labelling
CMR	Carcinogenic, mutagenic and/or toxic to reproduction
DEv	Dossier evaluation
ED	Endocrine disruptor
NONS	Notified new substances
OEL	Occupational exposure limit
OSH	Occupational safety and health
OSII or TII	On-site isolated intermediate or transported isolated intermediate
PBT/vPvB	Persistent, bioaccumulative and toxic/very persistent and very bioaccumulative
PMT	Persistent, mobile in water and toxic
RDT	Repeated dose toxicity
RMOA	Regulatory management options analysis
RMM	Risk management measures
RRM	Regulatory risk management
SEv	Substance evaluation
STOT RE	Specific target organ toxicity, repeated exposure
SVHC	Substance of very high concern

1 Overview of the group

ECHA has grouped together structurally similar substances based on the presence of the thiourea moiety. The group is structurally well-defined. The group members are limited to those substances where 'thiourea' is the only chemical functionality, with one exception (oxidised thiourea, OxTU, EC 217-157-8 / EC 224-065-1), a probable metabolite from thiourea.

There are 12 group members, from which eight are registered and four are not registered. One substance is a tautomer and has two EC numbers (EC 224-065-1, DTU and EC 217-157-8, OxTU). The water stable form (EC 217-157-8) is registered and the other is not.

Completed or ongoing regulatory processes which are relevant to mention here are:

- EC 202-506-9 (ETU) - CLH (Repr. 1B and Acute Tox. 4) and RMOA, the substance is included in the Candidate List
- EC 200-543-5 (TU) - CLH (on Repr., CLH process is paused, resuming is dependent on the CCH results)

All substances in the group (except EC 203-004-2, DPTU) are classified (by registrants or harmonised) for acute toxicity. Thyroid toxicity and reproductive effects were observed for the members of the group where relevant data were available. Most of substances in the group are also skin sensitizers. Most hazard findings are expected to be related to the common thiourea structure.

Based on information reported in the REACH registration dossiers, the main applications for thioureas are formulation and industrial uses in polymer production. Thioureas are used in small amounts as accelerator/process regulator in vulcanisation of rubber. Residual amounts in polymers are expected but are assumed to be low. Thioureas are used to produce general rubber products, tires, waterproof coats, vehicle dashboard sets and fabrics. However, DBTU is the only thiourea in the group with an identified article service life in polymer production in the registration dossiers.

EC 200-543-5 (TU), EC 202-506-9 (ETU) and EC 203-764-6 (DBTU) are used as corrosion inhibitor in electroplating processes. TU is also used in ore leaching. Some professional uses are identified for TU, but it is unclear what kind of uses are covered (fertilisers, surface modifier, absorbent, dye and/or bleaching agent). However, all these industrial and professional uses may lead to exposure to workers and ore leaching also to the environment.

For EC 217-157-8 (OxTU), industrial uses in textile applications (textile dye, washing and cleaning and decolourisation of textiles), consumer use in laundry bleach and article service life of cigarette filter paper were identified. The identified uses may lead to exposure for consumers and industrial workers. There is uncertainty whether the substance could be used in bleaching by professionals as well.

Other applications for thioureas are industrial uses in organic synthesis and as intermediates. However, in these cases the processes can be expected to be well controlled and only low exposure is expected.

Note on the scope of ECHA's assessment of regulatory needs

Regarding hazards, the focus of ECHA's assessment is on CMR (carcinogenic, mutagenic and/or toxic to reproduction), sensitiser, ED (endocrine disruptor), PBT/vPvB or equivalent (e.g. substances being persistent, mobile and toxic), aquatic toxicity hazard endpoints and therefore only those are reflected in the table in section 3. This does not mean that the substances do not have other known or potential hazards. In some specific cases, where ECHA identifies a need for regulatory risk management action at EU level for other hazards (e.g. neurotoxicity, STOT RE), such additional hazards may be addressed in the assessment. An overview of classification is presented in Annex 1.

On the exposure side, ECHA is mainly using the information on uses reported in the registration dossiers (IUCLID) as a proxy for assessing the potential for exposure to humans and releases to the environment. The potential for release / exposure is generally considered high for "widespread" uses, i.e. professional and consumer uses and uses in articles. For these uses, normally happening at many places, the expected level of control is *à priori* considered limited. The chemical safety reports are not necessarily consulted and no quantitative exposure assessment is performed at this stage.

2 Justification for the need for regulatory risk management action at EU level

All the substances in this group present a known or potential hazard for repeated dose toxicity (RDT), carcinogenicity, reproductive toxicity as well as skin sensitisation. For some substances, an endocrine disruptor (ED) mode of action cannot be excluded. Some members are also mutagenic in vitro and/or in vivo. Thioureas are considered toxic to aquatic organisms. These findings are qualitatively supported by the data in the dossiers but for several members of the group the available data are inconclusive and read across or data generation for confirming various hazard findings (CCH) is need. If CCH outcome indicates findings for carcinogenicity, substance evaluation (SEv) should be considered.

Based on currently available information, there is a need for (further) EU regulatory risk management –authorisation for carcinogenicity, reproductive toxicity, ED, and repeated dose toxicity due to the potential for exposure of EC 200-543-5 (TU), 217-157-8 (OxTU), 203-004-2 (DPTU), 203-308-5 (DETU), 203-674-6 (DBTU), EC 219-350-2 (TBTU) and EC 202-506-9 (ETU).

The first step of the regulatory risk management action (RRM) proposed, should the hazard exist, is the confirmation of hazard via harmonised classification (CLH) for reproductive toxicity category 1B and skin sensitisation category 1. CLH i) will require company level risk management measures (RMM) under occupational safety and health (OSH) legislation for workers to be in place, ii) is needed or highly recommended for further regulatory processes under REACH (i.e. CLH for carcinogenicity and reproductive toxicity for authorisation), iii) CLH for reproductive toxicity category 1B is a prerequisite to restrict the presence of the substances in consumer mixtures (e.g. laundry bleach), by means of the restriction entry 30 , iv) CLH is a prerequisite to restrict the presence of CMR substances in clothing, other textiles, and footwear articles, by means of the restriction entry 72

(this would require addition of the relevant substances to Appendix 12 by the Commission through Article 68(2)) and v) under the current proposal for restriction on skin sensitisers (and skin irritants and corrosive substances) in textiles, leather, and fur and hide articles, harmonised classification would be needed for the restriction to apply.

It could be considered to propose harmonised classification for other endpoints as well (human health and environment). For those, adequate self-classifications by registrants after generation of data could be sufficient to ensure protection of the environment.

Authorisation is considered appropriate to address the main uses of the seven substances (industrial uses), as well as professional uses of TU and possibly OxTU (see above). EC 202-506-9 (ETU) is already included in the Candidate List and this would support adding the other group members too. Therefore, after harmonised classification the substances should be proposed for inclusion in the Candidate List. At this point it could also be considered whether enough information is available also to identify some of the substances as ED and the added value of doing so on the top of carcinogenic or reproductive toxicity properties. Authorisation is not suggested to EC 219-350-2 (TBTU) because of low tonnage. However, in case there is any change of tonnage (and uses) the regulatory hypothesis and actions may be reassessed.

An EU-wide exposure limit for workers under occupational safety and health (OSH) legislation or REACH as an alternative risk management option to authorisation for industrial uses was also considered. There are national occupational exposure limits (OEL) for EC 200-543-5 (TU) and EC 202-506-9 (ETU) in two EU countries. Registrants derived a DNEL for workers of 1 mg/m^3 for TU which is higher than the existing two national OELs (0.5 and 0.3 mg/m^3). Authorisation may better promote substitution than an EU-wide exposure limit for workers would. Therefore, authorisation is suggested as the next regulatory risk management option for industrial and professional workers.

In addition, there is potential for exposure for consumers from consumer articles for the substances in the group. The content and the migration of six thioureas TU, ETU, DPTU, DETU, DBTU and EBTU (not part of this group) from chloroprene (neoprene) rubber products were studied by the Danish Environmental Protection Agency[3]. Many of the chloroprene rubber products like wetsuits, socks, work gloves, shoes etc. are used by consumers. DETU and DBTU were measured in chloroprene rubber products in this study[4]. The use of thiourea compounds in chloroprene rubber products is of concern because of the possibility of having residual concentrations in the final products. Harmonised classification as Skin Sens. 1 would mean that the substances in water sport products like neoprene swimming suits, gloves and socks are covered by the restriction proposal on skin sensitisers in clothing and related accessories[5]. Authorisation might be an option to further consider exposure to residual amounts of these substances in rubber articles and the need for a restriction of the substance(s) in articles would be assessed via Art. 69(2).

[3] The Danish Environmental Protection Agency. Survey and health assessment of thiourea compounds in chloroprene rubber. Survey of chemical substances in consumer products no. 118, 2012 https://www2.mst.dk/udgiv/publications/2012/06/978-87-92903-27-3.pdf

[4] DETU was present in concentrations of 33 to 720 mg/kg in ten of the 14 examined products, whereas DBTU was detected in one at 60 mg/kg. In comparison, the proposed restriction puts forward limits of 130 mg/kg in textile.

[5] https://echa.europa.eu/fi/registry-of-restriction-intentions/-/dislist/details/0b0236e182446136

Based on currently available information, there is no need for (further) EU regulatory risk management due to the potential for exposure of substance EC 229-005-8 (XTU).

EC 229-005-8 (XTU) has only intermediate use. Therefore, no EU regulatory risk management action is currently proposed for XTU due to low exposure potential. It is worth noting however that the strategy may need to be revisited and need for further regulatory action reconsidered if there is a change in the registration status or reported uses for the substance.

Based on currently available information, it is not possible to assess the need for EU regulatory risk management due to the potential for exposure of EC 208-588-2 (DMTU), EC 224-065-1 (DTU), EC 620-432-9 (PTU) and EC 201-706-3 (NTU)

It is not possible to clarify the potential hazards of substances EC 208-588-2 (DMTU), EC 224-065-1 (DTU), EC 620-432-9 (PTU) and EC 201-706-3 (NTU) since the substances are not registered. Therefore, it is proposed that there is currently no need for EU RRM action on these substances. If the registration status changes, data generation and potentially follow up actions will be re-considered when the assessment will be revisited

3 Conclusions and actions

The conclusions and actions proposed in the table below are based on the REACH and CLP information available at the time of the assessment by ECHA. The main source of information is the registration dossiers. Relevant public assessments may also be considered. When new information (e.g. on hazards through evaluation processes, or on uses) will become available, the document will be updated and conclusions and actions revisited.

EC number, substance name	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Last foreseen action	Action
200-543-5 **Thiourea**	Known or potential hazard for carcinogenicity, reproductive toxicity, skin sensitisation, RDT, ED	Known or potential hazard for aquatic toxicity and persistency	Industrial uses (organic synthesis, electroplating, ore leaching, intermediate), professional uses (e.g. fertilisers, surface modifier, absorbent, dye and bleaching agent)	**Need for EU RRM: authorisation** Justification: The harmonised classification as Repr. 1B would trigger the restriction entry 30 and by that ensure that the substances are not included in consumer mixtures above the limits specified in that entry. For industrial and professional uses, authorisation is suggested as the most appropriate option but this conclusion may need	**First step:** CCH **Next steps (if hazard confirmed):** • CLH (excluding ETU) • SVHC (excluding ETU) identification followed by authorisation for industrial and professional uses
217-157-8 **Aminoiminomethane sulphinic acid (OxTU)**	Known or potential hazard for reproductive toxicity, skin sensitisation, RDT, ED	Known or potential hazard for aquatic toxicity Inconclusive hazard for PBT	Formulation, industrial uses and consumer use in laundry bleach Article service life in textile and pulp&paper applications (cigarette filter papers)		

EC number, substance name	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Last foreseen action	Action
203-004-2 **1,3-diphenyl-2-thiourea (DPTU)**	Known or potential hazard for carcinogenicity, reproductive toxicity, skin sensitising, RDT, ED	Known or potential hazard for aquatic toxicity, persistency	Formulation and industrial uses in polymer production (general rubber products/ PVC).	to be revisited once the hazard is clarified based on further assessment. Authorisation is not suggested for TBTU because of low tonnage; any change of tonnage (and uses) to be followed ETU is already placed on the Candidate List.	
203-308-5 **1,3-diethyl-2-thiourea (DETU)**					
203-674-6 **1,3-dibutyl-2-thiourea (DBTU)**	Known or potential hazard for reproductive toxicity, skin sensitising, RDT, ED	Known or potential hazard for aquatic toxicity	Industrial uses and article service lives in polymer production		
219-350-2 **Tributyl-2-thiourea (TBTU)**	Known or potential hazard for mutagenicity, skin sensitisation	Known or potential hazard for aquatic toxicity and persistency	Formulation and industrial uses in polymer production		
202-506-9 **Imidazolidine-2-thione (ETU)**	Known or potential hazard for carcinogenicity, reproductive toxicity, skin sensitisation, RDT, ED	Known or potential hazard for aquatic toxicity	Formulation and industrial uses in polymer production and in electroplating		

EC number, substance name	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Last foreseen action	Action
229-005-8 **1-(2,6-xylyl)thiourea (XTU)**	Known or potential hazard for carcinogenicity, reproductive toxicity, skin sensitisation, RDT	Known or potential hazard for aquatic toxicity	Intermediate uses only	**Currently no need for EU RRM** Justification: Release and exposure are expected to be low	**No action**
208-588-2 **1,3-dimethyl-2-thiourea (DMTU)**			No information available (no registration)	**Currently no need for EU RRM** Justification: No registration. Actions (including data generation) will be re-considered when the assessment will be revisited if the registration status changes	**No action**
224-065-1 **Thiourea S,S-dioxide[#] (DTU)**					
620-432-9 **Propylenethiourea (PTU)**					
201-706-3 **Antu, 1-(1-naphthyl)-2-thiourea (NTU)**					

(#) the substance is regarded by CAS Registry as identical with EC 217-157-8

Annex 1: Overview of classifications

Data extracted on 27 February 2020.

EC/ List No	CAS No	Substance name	Harmonised classification	Classification in registrations	Classification in C&L notifications
200-543-5	62-56-6	Thiourea; Thiocarbamide	Carc. 2, H351 Repr. 2, H361d Acute Tox. 4 *, H302 Aquatic Chronic 2, H412	consistent with CLH	consistent with CLH
202-506-9	96-45-7	Imidazolidine-2-thione	Repr. 1B, H360d *** Acute Tox. 4 *, H302	Carc 2, H351 STOT RE2 (thyroid.)	-
203-004-2	102-08-9	1,3-diphenyl-2-thiourea		Skin Sens. 1A Repr. 2 H361 STOT RE 2 (Thyroid) Aquatic Chronic 2	-
203-308-5	105-55-5	1,3-diethyl-2-thiourea		Acute Tox. 4 H302 Acute Tox. 4 H312 Skin Sens. 1B Eye Dam. 1 STOT RE 1 H371 (Thyroid)	Carc 2, H351
203-674-6	109-46-6	1,3-dibutyl-2-thiourea		Acute Tox. 4 H312 Skin Sens. 1A H317 STOT RE 1 H372 (thyroid) Aquatic Chronic 2	
208-588-2	534-13-4	1,3-dimethyl-2-thiourea		*Not registered*	Skin Sens 1 H317 Acute Tox 4 H302

EC/ List No	CAS No	Substance name	Harmonised classification	Classification in registrations	Classification in C&L notifications
217-157-8	1758-73-2	Aminoiminomethanesulphinic acid		Self heating H252 Acute Tox. 4 H302 Skin Irrit. 2 H315 Eye Dam. 1 H318 Acute Tox. 4 H332 STOT SE 3 H335 (respiratory tra...) STOT RE 2 H373 (Effect on blood)	
219-350-2	2422-88-0	Tributyl-2-thiourea		Acute Tox. 4 H302 Aquatic Acute 1 H400 Aquatic Chronic 1 H410	
224-065-1	4189-44-0	Thiourea S,S-dioxide		*Not registered*	Self heating H252 Acute Tox. 4 H302 Eye Irrit. 2 H319
229-005-8	6396-76-5	1-(2,6-xylyl)thiourea		Acute Tox. 4 H302 Eye Irrit. 2 H319	STOT SE3
201-706-3	86-88-4	Antu	Acute Tox. 2 * H300 Carc. 2 H351	*Not registered*	
620-432-9	2122-19-2	Propylenethiourea	Acute Tox. 2* H302 Repr. 2 H361d *** Aquatic Chronic 3 H412	*Not registered*	

Annex 2: Overview of uses based on information available in registration dossiers

Data extracted on 27 February 2020.

Main types of applications structured by product or article types	EC/ List 200-543-5	EC/ List 202-506-9	EC/ List 203-004-2	EC/ List 203-308-5	EC/ List 203-674-6	EC/ List 217-157-8	EC/ List 219-350-2
Use in general rubber products		F, I, **A?**	F,I, **A?**	F, I, **A?**	I, **A**		F, I, **A?**
Use in tires		F, I					
Use in PVC			F, I				
Use in organic synthesis; some performed under SCC	I					I	
Electroplating processes and ore leaching; use as anticorrosion	I	I			I		
Use as fertilisers, antioxidant; surface modifier; catalyst; stabilising agent; absorbent; monomer; flotation agent; photochemical; dye; bleaching agent	I, **P**						
Ingredient of chemical mixtures	F					F	
Use in paper and pulp, textile application (textile dye, washing and cleaning, decolorisation)						F, I, **A**	
Use in laundry bleach						I, **C, P?**	
Laboratory chemical	I			I, **P**			
Intermediate	I						

F: formulation, I: industrial use, P: professional use, C: consumer use, A: article service life; P, C and A are highlighted in red to indicate widespread use with potential for exposure/release

Annex 3: Overview of completed or ongoing regulatory risk management activities

Data extracted on 27 February 2020.

EC / List number	RMOA	Authorisation		Restriction*	CLH	Actions not under REACH / CLP
		Candidate list	Annex XIV	Annex XVII	Annex VI (CLP)	
200-543-5					YES	Screening
202-506-9	YES	YES	YES#		YES	
203-004-2						Screening
620-432-9					YES	
201-706-3					YES	

*Some of the broad restriction entries in the Annex XVII of REACH are not represented in the overview, e.g. when the scope of the restriction is defined by its classification or the substance identification is broad (e.g. entries 3, 28-30 and 40).
The substance is not yet in Annex XIV, but under the prioritisation process for recommendation for the Authorisation list

There are no relevant completed or ongoing regulatory risk management activities for the other substances.

Annex 4: Non exhaustive list of substances in the C&L inventory that may fall into the group definition

After the GMT has started, new information was received, regarding similar substances for which there were C&L notifications.

As a result, two substances with harmonised classification (CLH) were added to the group.

Below is a table with the overview of the additional substances, in case of future need.

EC Number	CAS Number	Substance Name	submission type
201-706-3	86-88-4	Antu	CLH
203-151-2	103-85-5	Phenyl-2-thiourea	C&L notification
205-309-6	137-97-3	1,3-di-o-tolyl-2-thiourea	C&L notification
209-936-6	598-52-7	Methyl-2-thiourea	C&L notification
210-395-3	614-78-8	o-tolylthiourea	C&L notification
210-686-5	621-40-9	m-tolyl-2-thiourea	C&L notification
210-709-9	621-83-0	Benzylthiourea	C&L notification
210-740-8	622-52-6	p-tolylthiourea	C&L notification
210-899-3	625-53-6	Ethyl-2-thiourea	C&L notification
213-158-2	927-67-3	Propyl-2-thiourea	C&L notification
214-920-7	1212-29-9	1,3-(dicyclohexyl)thiourea	C&L notification
215-837-9	1424-14-2	1,3-dibenzyl-2-thiourea	C&L notification
216-165-9	1516-32-1	Butyl-2-thiourea	C&L notification
219-644-0	2489-77-2	Trimethyl-2-thiourea	C&L notification
220-369-3	2740-94-5	3-benzyl-1-methylthiourea	C&L notification
220-488-0	2782-91-4	Tetramethyl-2-thiourea	C&L notification
221-051-7	2986-17-6	1,3-diisopropyl-2-thiourea	C&L notification
223-732-4	4041-95-6	1,3-[di-tert-butyl]thiourea	C&L notification
223-877-3	4104-75-0	1-methyl-1-phenylthiourea	C&L notification
230-204-7	6972-05-0	1,1-dimethyl-2-thiourea	C&L notification
230-855-7	7341-63-1	1-allyl-3-phenyl-2-thiourea	C&L notification
244-191-0	21071-28-3	1,3-(dihexyl)thiourea	C&L notification
251-285-5	32900-06-4	1-butyl-3-ethylthiourea	C&L notification
296-749-8	93028-57-0	Thiourea, N,N'-mixed Bu and Et derivs.	PPORD notification
605-626-3	1719-76-2	Thiourea, N-(1-methylethyl)-	C&L notification
610-055-8	4274-15-1	Tetraethyl thiourea	C&L notification
620-432-9	2122-19-2	propylenethiourea	CLH
623-383-1	97480-60-9	(3,5-Dimethylphenyl)thiourea	C&L notification
623-950-3	113899-66-4	Thiourea-13C	C&L notification
633-761-8	18764-68-6	1,1-Diisopropyl-3-phenyl-2-thiourea	C&L notification
634-864-0	37042-63-0	1,1'-m-Phenylenedimethylbis(3-phenylthiourea)	C&L notification
635-367-1	7614-64-4	1,3-bis(decyl)thiourea	C&L notification
636-636-6	24053-70-1	1,1-Dimethyl-3-(2,6-xylyl)-2-thiourea	C&L notification
640-417-0	29306-06-7	N,N,N'-Triethylthiourea	C&L notification
640-755-9	7204-48-0	N-(tert-Butyl)thiourea	C&L notification

EC Number	CAS Number	Substance Name	submission type
652-113-5	15093-53-5	1,1-DIBENZYL-3-PHENYL-2-THIOUREA	C&L notification
652-166-4	2741-13-1	1,1-DIMETHYL-3-(PARA-TOLYL)-2-THIOUREA	C&L notification
653-061-6	32900-00-8	1-METHYL-3-PROPYL-2-THIOUREA	C&L notification
653-342-3	6312-79-4	1-HEXADECYL-3-PHENYL-2-THIOUREA	C&L notification
653-660-2	6336-01-2	3-butyl-1-phenylthiourea	C&L notification
653-675-4	2741-14-2	3-BENZYL-1,1-DIMETHYL-2-THIOUREA	C&L notification
654-439-3	6601-20-3	1,1,3-Triallyl-2-thiourea	C&L notification
654-518-2	109-40-0	1,3-DIOCTYL-2-THIOUREA	C&L notification
654-533-4	2741-12-0	1,1-DIMETHYL-3-(ORTHO-TOLYL)-2-THIOUREA	C&L notification
659-403-0	6278-80-4	1,3-DIHEXADECYL-2-THIOUREA	C&L notification
659-716-2	111782-17-3	1-PHENYL-3-TETRADECYL-2-THIOUREA	C&L notification
660-184-9	18371-52-3	1,1,3-TRIPHENYL-2-THIOUREA	C&L notification
660-902-0	65259-90-7	1-(4-TERT.-BUTYLPHENYL)-2-THIOUREA	C&L notification
661-627-9	6335-93-9	1-(2-NAPHTHYL)-3-PHENYL-2-THIOUREA	C&L notification
661-814-5	1145-66-0	1-PHENYL-3-(P-TOLYL)-2-THIOUREA	C&L notification
664-862-5	6625-73-6	1-OCTADECYL-3-PHENYL-2-THIOUREA	C&L notification
665-757-7	16275-53-9	1-ISOBUTYL-3-PHENYL-2-THIOUREA	C&L notification
665-875-9	13140-47-1	1-PHENYL-3-PROPYL-2-THIOUREA	C&L notification
665-881-1	15093-42-2	1-PHENETHYL-3-PHENYL-2-THIOUREA	C&L notification
665-882-7	63980-78-9	1-DODECYL-3-PHENYL-2-THIOUREA	C&L notification
666-659-7	2762-59-6	1,1-PENTAMETHYLENE-3-PHENYL-2-THIOUREA	C&L notification
666-660-2	722-03-2	1-CYCLOHEXYL-3-PHENYL-2-THIOUREA	C&L notification
667-095-4	15093-47-7	1,1-DIBUTYL-3-PHENYL-2-THIOUREA	C&L notification
667-365-1	92109-75-6	1,1-DIALLYL-3-PHENYL-2-THIOUREA	C&L notification
667-813-6	95167-89-8	1-(4-ETHYLPHENYL)-3-PHENYL-2-THIOUREA	C&L notification
667-820-4	25347-93-7	1-PHENYL-3-(2,6-XYLYL)-2-THIOUREA	C&L notification
667-828-8	17073-29-9	1-ALLYL-3-(1-NAPHTHYL)-2-THIOUREA	C&L notification
668-669-7	35305-48-7	1-(4-METHYLBENZYL)-3-PHENYL-2-THIOUREA	C&L notification
669-108-9	39964-24-4	1-CYCLOPENTYL-3-PHENYL-2-THIOUREA	C&L notification
671-715-9	6815-00-5	(2-phenylethyl)thiourea	C&L notification
672-770-1	25444-82-0	1-(adamantan-1-yl)thiourea	C&L notification
673-997-9	5055-72-1	1-cyclohexylthiourea	C&L notification
674-209-6	22265-78-7	(4-ethylphenyl)thiourea	C&L notification
677-690-0	55752-58-4	(2,3-dimethylphenyl)thiourea	C&L notification
677-789-9	26536-60-7	1,3-DIPROPYL-2-THIOUREA	C&L notification
825-613-8	56541-14-1	cyclopropylthiourea	C&L notification
831-248-5	102936-57-2	cyclopentylthiourea	C&L notification
838-195-7	7204-46-8	N,N-diethylthiourea	C&L notification
845-523-2	1516-33-2	(2-methylpropyl)thiourea	C&L notification
847-005-1	67398-34-9	(1-phenylethyl)thiourea	C&L notification