United States
Environmental Protection Agency

August 2021
Office of Chemical Safety and
Pollution Prevention

Final Use Report for Di-isononyl Phthalate (DINP) (1,2-Benzene-dicarboxylic acid, 1,2-diisononyl ester, and 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich)

(CASRN 28553-12-0 and 68515-48-0)

August 2021

Acknowledgment and Disclaimer

EPA acknowledges the analytical and draft preparation support of Abt Associates Inc. of Cambridge, Massachusetts, provided under Contract No. EP-W-16-009 in the preparation of this report.

This document provides publicly available information as of the date of this document on the manufacturing (including importing), processing, distribution in commerce, use, and disposal of DINP and is used to inform decisions regarding conditions of use. The document does not reflect information received directly from other sources such as manufacturers, processors, etc., which has further informed the conditions of use in the draft Scope Document. As such, the uses described in this document may differ from the conditions of use in the draft Scope Document.

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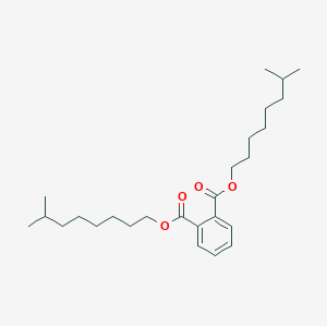
1 Introduction

On May 23rd EPA received a manufacturer requested risk evaluation for diisononyl phthalate (DINP; CAS RN 28553-12-0 & 68515-48-0). This substance is represented by two CAS RNs (28553-12-0 & 68515-48-0) that reflect differences in how the chemical is manufactured. This document provides publicly available information as of the date of this document on the manufacturing (including importing), processing, distribution in commerce, use, and disposal of DINP and is used to inform decisions regarding conditions of use. The document does not reflect information received directly from other sources such as manufacturers, processors, etc., which has further informed the conditions of use in the draft Scope Document. As such, the uses described in this document may differ from the conditions of use in the draft Scope Document.

DINP is a phthalate used as a plasticizer, pigment, and fragrance in consumer and commercial products as well as numerous manufacturing applications (EPA 2017a, 2017b). DINP is a general purpose plasticizer for PVC in many applications and has replaced use of DEHP as a plasticizer in many applications except for medical supplies (Ullmann's 2017, 2007). Table 1-1 includes basic information about DINP.

Table 1-1: Chemical Name, Synonyms, and CASRN for DINP

Chemical Name	Diisononyl phthalate
CASRN	28553-12-0; 68515-48-0
Synonyms	1,2-Benzenedicarboxylic Acid 1,2-Bis(7-methyloctyl) Ester; 1,2-Benzenedicarboxylic acid, bis(7-methyloctyl) ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich; 1,2-Benzenedicarboxylic acid, diisononyl ester; Bis(7-Methyl-1-octanol) Phthalate; bis(7-methyloctyl) benzene-1,2-dicarboxylate; Bis(7-methyloctyl) phthalate; Di(C8-10, C9 rich) branched alkyl phthalates; Di(C8-C10) branched alkyl phthalate; di-isononyl phthalate; Phthalic acid, bis(7-methyloctyl) ester
Trade Name(s)	None found.
Molecular Formula	$C_{26}H_{42}O_4$
Representative Structure	
Source(s): NLM (2019a)	

2 Uses and Production Volume

The primary data source used to assess use and production in this report is EPA's Chemical Reporting Database (CDR). Note that Appendix A presents a complete list of the sources searched and utilized for the composition of this report.

2.1 Domestic Manufacture and Import (CDR)

2.1.1 Chemical Data Reporting

The CDR rule under TSCA requires manufacturers (including importers) to provide information to EPA every four years on the chemicals they manufacture or import into the United States. Table 2-1 presents the various conditions under which a facility subject to TSCA must report to CDR. For chemicals such as di-isobutyl phthalate which are not subject to specific TSCA actions, a manufacturer is required to report any volume generally above 25,000 pounds, while small manufacturers are only required to report any volume generally above 100,000 pounds. Data collected for each chemical include the company name, volume of each chemical manufactured/imported, the number of workers at each site, and information on whether the chemical is used in the industrial, commercial, and/or consumer sector. Exemptions apply to small manufacturers. The definition of a small manufacturer varies depending on the sector in which it operates, but generally, CDR requires manufacturers (including importers) to report information on the chemicals they produce domestically or import into the U.S. generally above 25,000 lbs. per site per year.

Table 2-1: Conditions under Which a Company Must Report to CDR (shaded area applies to Diisononyl Phthalate)

TSCA Action	Obligation to Report to CDR Information When Subject to TSCA Action as Indicated in Left column			
	Subject to 25,000 lb. reporting threshold	Subject to 2,500 lb. reporting threshold	Not eligible for certain full or partial exemptions from reporting	Not eligible for small manufacturer exemption
Not subject to TSCA action	✓			
TSCA section 4 rules (proposed or promulgated)	✓		✓	✓
Enforceable Consent Agreements (ECAs)	✓		✓	
TSCA section 5(a)(2) SNURs (proposed or promulgated)		✓	✓	
TSCA section 5(b)(4) rules (proposed or promulgated)		✓	✓	✓
TSCA section 5(e) orders		✓	✓	✓
TSCA section 5(f) orders		✓	✓	
TSCA section 5 civil actions		✓	✓	✓
TSCA section 6 rules (proposed or promulgated)		✓	✓	✓

TSCA Action	Obligation to Report to CDR Information When Subject to TSCA Action as Indicated in Left column			
	Subject to 25,000 lb. reporting threshold	**Subject to 2,500 lb. reporting threshold**	**Not eligible for certain full or partial exemptions from reporting**	**Not eligible for small manufacturer exemption**
TSCA section 7 civil actions		✓	✓	✓
Note: The reporting thresholds provided in this table apply to the 2016 reporting cycle and are determined based on the chemical substance's status as of June 1, 2016.				

2.1.2 Manufacturers and Importers

According to the 2016 Chemical Data Reporting (CDR) database, 28 companies manufactured or imported DINP at 37 sites for reporting year 2015. Table 2-2 presents the company information and manufacture and import information where available. Table 2-2 does not represent all of the facilities potentially manufacturing or using DINP. CDR requires manufacturers (including importers) to report information on the chemicals they produce domestically or import into the U.S. generally above 25,000 lbs. per site per year. Individual production volumes were withheld, but may be available in later releases of the 2016 CDR.

Table 2-2: 2016 CDR U.S. Manufacturers and Importers of DINP

CAS RN	U.S. Parent Company	Site	Site Address	Manufacture or Import	Manufactured Volume (lbs./yr.)	Imported Volume (lbs./yr.)	Past Production Volume (2014) (lbs./yr.)
28553-12-0	Adeka USA Corporation	Adeka USA Corporation	777 Terrace Ave, Hasbrouck Heights, NJ, 07604	Import	Withheld	Withheld	Withheld
28553-12-0; 68515-48-0	Alac International Inc.	Alac International Inc.	55 Broad St, New York, NY, 10004	Import	Withheld	Withheld	Withheld
		Alac International Inc.	55 Broad St, New York, NY, 10004	Import	Withheld	Withheld	Withheld
		Alac International Inc.	708 Third Avenue 5th Floor, New York, NY, 10017	Withheld	Withheld	Withheld	Withheld
28553-12-0	Arkema Inc.[1]	Bostik Inc.	11320 Watertown Plank Rd, Wauwatosa, WI, 53226-3413	CBI	Withheld	Withheld	Withheld
28553-12-0	BASF Corporation	BASF Imports Part 3A	100 Park Ave, Florham Park, NJ, 07932	Import	Withheld	Withheld	Withheld
		BASF Pasadena Plant	4403 La Porte Road, Pasadena, TX, 77501	Manufacture	Withheld	Withheld	Withheld
28553-12-0	Cascade Columbia Distribution Co.[1]	Cascade Columbia Distribution	14200 Southwest Tualatin Sherwood Road, Sherwood, OR, 97140-9624	Import	Withheld	Withheld	Withheld
28553-12-0; 68515-48-0	CBI	Air Prod & Chem Hamilton Blvd Fac.	7201 Hamilton Boulevard, Allentown, PA, 18195-9642	CBI	Withheld	Withheld	Withheld
		Exxon Mobil Br Chemical Plant	4999 Scenic Hwy., Baton Rouge, LA, 70805	CBI	Withheld	Withheld	Withheld

CAS RN	U.S. Parent Company	Site	Site Address	Manufacture or Import	Manufactured Volume (lbs./yr.)	Imported Volume (lbs./yr.)	Past Production Volume (2014) (lbs./yr.)
		Greenchem	222 Clematis St, West Palm Beach, FL, 33401	CBI	Withheld	Withheld	Withheld
28553-12-0; 68515-48-0	Chemspec, Ltd.[1]	Chemspec, Ltd.	1559 Corporate Woods Pkwy, Uniontown, OH, 44685	Import	Withheld	Withheld	Withheld
		Chemspec, Ltd.	1559 Corporate Woods Pkwy, Uniontown, OH, 44685	Import	Withheld	Withheld	Withheld
28553-12-0	Contitech North America Inc.	Belt Concepts Of America Inc.	605 N. Pine St., Spring Hope, NC, 27882	Import	Withheld	Withheld	Withheld
28553-12-0	Evonik Corporation[1]	Evonik Corporation	299 Jefferson Rd, Parsippany, NJ, 07054	Import	Withheld	Withheld	Withheld
68515-48-0	FRP Services & Co. (America) Inc.	FRP Services & Co. (America) Inc.	25 W 45th St, New York, NY, 10036	Withheld	Withheld	Withheld	Withheld
28553-12-0	Hallstar Co.[1]	The Hallstar Company	120 S. Riverside Drive; Suite 1620, Chicago, IL, 60606	CBI	Withheld	Withheld	Withheld
28553-12-0	Henkel Corporation[1]	Henkel Louisville	7101 Logistics Dr, Louisville, KY, 40258	Import	Withheld	Withheld	Withheld
28553-12-0	ICC Industries Inc.[1]	ICC Chemical Corporation	460 Park Avenue, New York, NY, 10022-1906	CBI	Withheld	Withheld	Withheld
28553-12-0	Industrial Chemicals Inc.[1]	Industrial Chemicals Inc.	2042 Montreat Drive, Vestavia Hills, AL, 35216	Withheld	Withheld	Withheld	Withheld
28553-12-0	MC International, LLC[1]	MC International, LLC	2 Ne 40th Street, Miami, FL, 33137	Import	Withheld	Withheld	Withheld

CAS RN	U.S. Parent Company	Site	Site Address	Manufacture or Import	Manufactured Volume (lbs./yr.)	Imported Volume (lbs./yr.)	Past Production Volume (2014) (lbs./yr.)
68515-48-0	Mexichem Sab De CV[1,2]	Alphagary Corp.	170 Pioneer Drive, Leominster, MA, 01453-3474	Withheld	Withheld	Withheld	Withheld
		Alphagary Corp.	9635 Industrial Dr., Pineville, NC, 28134	Withheld	Withheld	Withheld	Withheld
28553-12-0	Nexeo Solutions, LLC	Nexeo Solutions LLC	5200 Blazer Pkwy Ds-3, Dublin, OH, 43017	Import	Withheld	Withheld	Withheld
28553-12-0; 68515-48-0	Polyone Corporation	Elyria Distribution Ctr.	1404 Lowell Street, Elyria, OH, 44035	Withheld	Withheld	Withheld	Withheld
		Polyone Corp.	4250 Bells Ln, Louisville, KY, 40211	Import	Withheld	Withheld	Withheld
		Polyone Corp.	3100 N 35th St, Terre Haute, IN, 478041773	Withheld	Withheld	Withheld	Withheld
		Polyone Corp.	4250 Bells Ln, Louisville, KY, 40211	Withheld	Withheld	Withheld	Withheld
28553-12-0	Royce International[1]	Royce International	3400 S. Tamiami Trail, Suite 300, Sarasota, FL, 34239	Withheld	Withheld	Withheld	Withheld
28553-12-0	Sankyo America, Inc.	Sankyo America, Inc.	8421 Bearing Drive, Suite 100, Indianapolis, IN, 46268	Import	Withheld	Withheld	Withheld
28553-12-0	Silver Fern Chemical, Inc.	Silver Fern Chemical	2226 Queen Anne Avenue North, Seattle, WA, 98109	Import	Withheld	Withheld	Withheld
28553-12-0	Soyventis North America LLC	Soyventis North America LLC	100 Town Square Pl, Jersey City, NJ, 07310	Import	Withheld	Withheld	Withheld

CAS RN	U.S. Parent Company	Site	Site Address	Manufacture or Import	Manufactured Volume (lbs./yr.)	Imported Volume (lbs./yr.)	Past Production Volume (2014) (lbs./yr.)
68515-48-0	Stahl International BV	Permuthane Div. Of Stahl USA	13 Corwin St., Peabody, MA, 01960	Import	Withheld	Withheld	Withheld
28553-12-0; 68515-48-0	Teknor Apex Co.	Teknor Apex Co.	505 Central Avenue, Pawtucket, RI, 02861-1900	Withheld	Withheld	Withheld	Withheld
		Teknor Apex Tennessee Co (Aka Haywood Co.)	751 Dupree Street, Brownsville, TN, 38012-1708	Manufacture	Withheld	Withheld	Withheld
28553-12-0	Toyota Tsusho America, Inc.[1,2]	Toyota Tsusho America, Inc.	1300 Post Oak Blvd Ste 1850, Houston, TX, 77056	Withheld	Withheld	Withheld	Withheld
68515-48-0	Univar Inc.	Univar USA Inc.	17411 Ne Union Hill Rd., Redmond, WA, 98052	Import	Withheld	Withheld	Withheld
68515-48-0	Valtris Specialty Chemicals Inc.[1]	Akcros Chemicals	501 Jersey Ave, New Brunswick, NJ, 08901	Manufacture/Import	Withheld	Withheld	Withheld
28553-12-0	Vectra Corp	OMG Americas	2 Mile Run Rd., Franklin, PA, 163230111	Manufacture	Withheld	Withheld	Withheld
28553-12-0	Wego Chemical Group	Wego Chemical & Mineral Corp.	239 Great Neck Road, Great Neck, NY, 11021-3301	Import	Withheld	Withheld	Withheld

Source(s): EPA (2017b)

1. This company reported consumer and commercial use in CDR, however this company did not submit information under Part 3B (Processing & Use Information).
2. This company reported industrial use in CDR, however this company did not submit information under Part 3B (Processing & Use Information).

2.1.3 National Production Volume

Table 2-3 presents the historic production volume of DINP from the CDR (previously known as the Inventory Update Rule, or IUR) from 1986-2015.

National production volume under CAS RN 28553-12-0 has generally increased over time. In reporting year 1986, aggregate production volume for DINP was between 1 million and 10 million lbs. and from reporting years 1990 to 2002, aggregate production volume for this chemical was between 10 million and 50 million lbs. From reporting years 2006 to 2015, aggregate production volume for DINP was between 100 million and 250 million lbs. The exact amount is available for one year, 2011, in which 108,497,785 lbs. of DINP was produced or imported.

National production volume under CAS RN 68515-48-0 has remained relatively stagnant over time. In reporting years 1986, 1994, 1998, 2002, and 2006, aggregate production volume for DINP was between 100 million and 500 million lbs., and in reporting year 1990 aggregate production volume of this chemical was over 1 billion lbs. From reporting year 2011 to 2015, between 100 million and 250 million lbs. of DINP was produced or imported.

Table 2-3: 1986-2015 National Production Volume Data for DINP (Non-Confidential Production Volume in Pounds)

CAS RN	1986	1990	1994	1998	2002	2006	2011	2012	2013	2014	2015
28553-12-0	>1 M - 10 M	>10 M - 50 M	>10 M - 50 M	>10 M - 50 M	>10 M - 50 M	100 M - <500 M	108,497,785	100 M – 250 M	100 M – 250 M	100 M – 250 M	100 M – 250 M
68515-48-0	>100 M - 500 M	> 1 B	>100 M - 500 M	>100 M - 500 M	>100 M - 500 M	100 M - <500 M	100 M - 250 M	100 M – 250 M	100 M – 250 M	100 M – 250 M	100 M – 250 M

K = Thousand; M = Million; B = Billion; NDR = No data reported

Source(s): EPA (2018a; 2017b; 2006; 2002)

2.2 Toxics Release Inventory (TRI) Data

TRI is used by EPA to learn about toxic chemical releases above certain reporting thresholds (generally 10,000 pounds), and pollution prevention activities from industrial and federal facilities. Annual reporting is required by facilities that are in specific industry sectors, employ 10 or more full-time equivalent employees, and manufacture, process, or otherwise use a TRI-listed chemical in quantities above a threshold level in a given year (U.S. Environmental Protection Agency (EPA) 2018e).The approximately 600 chemicals listed by the TRI program cause cancer or other chronic human health effects, significant adverse acute human health effects, or significant adverse environmental effects. The TRI chemical list does not include all toxic chemicals used in the United States.

DINP was not reported to the 2017 Toxics Release Inventory (TRI).

2.3 Resource Conservation and Recovery Act (RCRA) Data

The RCRA Biennial Report (BR) contains information on generation, transportation, treatment, storage, and disposal of hazardous waste.

DINP was not reported to the 2017 RCRA Biennial Report.

2.4 National Emissions Inventory (NEI) Data

The National Emissions Inventory (NEI) is a comprehensive and detailed estimate of air emissions of criteria pollutants, criteria precursors, and hazardous air pollutants from air emissions sources. The NEI is released every three years based primarily upon data provided by State, Local, and Tribal air agencies for sources in their jurisdictions and supplemented by data developed by the US EPA (EPA 2014a).

DINP was not reported to the 2014 NEI.

2.5 Summary of Uses

This section summarizes the uses of DINP. See Table 2-4 and Table B-1 for a more comprehensive review of di-isobutyl phthalate uses. See Appendix A for a description of sources used in this report in addition to CDR.

Uses are divided into Tier 1 and Tier 2 uses. Those in Tier 1 generally have more information to support the accuracy of the use. For instance, these uses may be identified from sources where manufacturers and producers self- report the information or have been confirmed by identification of the chemical on a product SDS. They are found in Table 2-4. Tier 2 uses are other uses that may be historic, non-TSCA use, or more anecdotal, and are found in the table in Appendix B.

The U.S. Patent and Trademark Office has an online database that shows 1,743 patents referencing “Diisononyl phthalate” (USPTO 2019). Although patents could be useful in determining reasonably foreseeable uses, the information can be extremely technical, and it is difficult to confirm whether any of the patented technologies are currently in use. Therefore, uses inferred from patents containing DINP were not included in Table 2-4.

2.6 Tier 1 Uses of DINP

Table 2-4: Tier 1 Uses of DINP

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Manufacturing			
Import		Industrial	EPA (2017b) The 2016 CDR reports import of DINP.
Manufacture		Industrial	EPA (2017b) The 2016 CDR reports domestic manufacturing of DINP.
Processing			
As a reactant; Incorporation into formulation, mixture, or reaction product	Adhesive manufacturing	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b); CPCat (2015); ECHA (2019) The 2016 and 2012 CDRs report use of DINP as an adhesive and sealant chemical, intermediate, and plasticizer for non-incorporative activities and processing (as a reactant and incorporation into formulation, mixture, or reaction product) in adhesive manufacturing. ECHA identifies use of this chemical in the manufacture of adhesives in European countries. Table 2-5 lists multiple plasticizer products that contain DINP.
Incorporation into formulation, mixture, or reaction product	All other basic organic chemical manufacturing	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b) The 2016 CDR reports use of DINP as a processing aid for processing (incorporation into formulation, mixture, or reaction product) in all other basic organic chemical manufacturing.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Incorporation into formulation, mixture, or reaction product	All other chemical product and preparation manufacturing	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b); CPCat (2015); ECHA (2019); SPIN (2020) The 2016 CDR reports use of DINP as a heat stabilizer and intermediate for processing (incorporation into formulation, mixture, or reaction product) in all other chemical product and preparation manufacturing. The 2012 CDR reports use of this chemical as a finishing agent in all other chemical product and preparation manufacturing. ECHA and SPIN identify use of this chemical in the manufacture of chemicals and chemical products in European and Nordic countries, respectively.
Incorporation into formulation, mixture, or reaction product	CBI	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b) The 2016 and 2012 CDRs report industrial use of DINP for processing (incorporation into formulation, mixture, or reaction product) withheld as CBI.
Incorporation into formulation, mixture, or reaction product	Construction	Industrial Expected users are based on CDR's Industrial Use report.	EPA (2014b); CPCat (2015); NLM (2015); SPIN (2020) The 2012 CDR reports industrial use of DINP as an adhesive and sealant chemical in construction. NLM's HSDB identifies use of DINP in construction sealants. SPIN identifies use of DINP in the construction of buildings, civil engineering, joinery installation, bricklaying, and specialized construction activities in Nordic countries.
Incorporation into formulation, mixture, or reaction product	Custom compounding of purchased resin	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b); CPCat (2015) The 2016 and 2012 CDRs report use of DINP as a plasticizer for processing (incorporation into formulation, mixture, or reaction product) in custom compounding of purchased resin. Table 2-5 lists multiple plasticizer products that contain DINP.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Incorporation into article	Electrical equipment, appliance, and component manufacturing	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b); NLM (2015); ECHA (2019) The 2016 and 2012 CDRs report use of DINP as a plasticizer for processing (incorporation into article) in electrical equipment, appliance, and component manufacturing. NLM identifies use of DINP in extrusion for wire and cable. ECHA identifies use of this chemical in the manufacture of computer, electronic and optical products, and electrical equipment in European countries. Table 2-5 lists multiple plasticizer products that contain DINP.
Incorporation into formulation, mixture, or reaction product	Furniture and related product manufacturing	Industrial Expected users are based on CDR's Industrial Use report.	EPA (2014b); CPCat (2015); ECHA (2019) The 2012 CDR reports use of DINP as a processing aid for processing (incorporation into formulation, mixture, or reaction product) in the manufacture of furniture and related products. ECHA identifies use of this chemical in the manufacture of furniture in European countries.
Incorporation into article	Miscellaneous manufacturing	Industrial Expected users are based on CDR's Industrial Use report.	EPA (2014b); CPCat (2015); NLM (2015); ECHA (2019); SPIN (2020) The 2012 CDR reports use of DINP as a plasticizer for processing (incorporation into article) in miscellaneous manufacturing. NLM identifies use of this chemical in miscellaneous injection moulding. ECHA identifies use of this chemical in general manufacturing in European countries. SPIN identifies use of DINP in other manufacturing in Nordic countries. Table 2-5 lists multiple plasticizer products that contain DINP.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Incorporation into article, formulation, mixture, or reaction product; Repackaging	Paint and coating manufacturing	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b); CPCat (2015); ECHA (2019); SPIN (2020) The 2016 and 2012 CDRs report use of DINP as an additive, plasticizer, and process regulator for processing (repackaging and incorporation into article, formulation, mixture, or reaction product) in paint and coating manufacturing. ECHA identifies use of DINP in the manufacture of paints, varnishes and similar coatings, printing inks, and mastics in European countries. SPIN reports use of this chemical in industry for paint in Nordic countries. Table 2-5 lists multiple plasticizer products that contain DINP.
As a reactant; Incorporation into article, formulation, mixture, or reaction product; Repackaging	Plastic material and resin manufacturing	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b); CPCat (2015); SPIN (2020) The 2016 and 2012 CDRs report use of DINP as an intermediate, paint and coating additive, and plasticizer for non-incorporative activities and processing (repackaging, as a reactant, and incorporation into article, formulation, mixture, or reaction product) in plastic material and resin manufacturing. SPIN identifies use of DINP in the manufacture of rubber and plastic products in Nordic countries. Table 2-5 lists multiple plasticizer products that contain DINP.
As a reactant; Incorporation into article, formulation, mixture, or reaction product	Plastics product manufacturing	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b); CPCat (2015); ECHA (2019); SPIN (2020) The 2016 and 2012 CDRs report use of DINP as a plasticizer for processing (as a reactant and incorporation into article, formulation, mixture, or reaction product) in the manufacture of plastic products. ECHA identifies use of this chemical as a plasticizer in the manufacture of plastic products in European countries. SPIN identifies use of DINP in industry and raw materials for plastic products in Nordic countries. Table 2-5 lists multiple plasticizer products that contain DINP.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
As a reactant; Incorporation into formulation, mixture, or reaction product	Rubber manufacturing	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); ECHA (2019); SPIN (2020) The 2016 CDR reports use of DINP as a plasticizer for processing (as a reactant and incorporation into formulation, mixture, or reaction product) in the manufacture of synthetic rubber and rubber products. ECHA identifies use of this chemical as a plasticizer in the manufacture of rubber products in European countries. SPIN identifies use of DINP in the manufacture of rubber and plastic products and industry for rubber products in Nordic countries. Table 2-5 lists multiple plasticizer products that contain DINP.
Incorporation into article	Textiles, apparel, and leather manufacturing	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b); CPCat (2015) The 2016 and 2012 CDRs report use of DINP for processing (incorporation into article) in textiles, apparel, and leather manufacturing.
Incorporation into formulation, mixture, or reaction product; Repackaging	Wholesale and retail trade	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b); EPA (2014b); SPIN (2020) The 2016 and 2012 CDRs report use of DINP as a plasticizer for non-incorporative activities and processing (repackaging and incorporation into formulation, mixture, or reaction product) in wholesale and retail trade. SPIN identifies use of this chemical in wholesale trade in Nordic countries, including for motor vehicles and motorcycles. SPIN also reports use of DINP in retail trade and repair of motor vehicles and motorcycles in Nordic countries. Table 2-5 lists multiple plasticizer products that contain DINP.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Consumer, Commercial, and Industrial Uses			
Adhesives, caulking compounds, resins, filaments, sealants	Adhesives and sealants	Consumer, Commercial, Industrial Expected users are consumer and commercial based on CDR's consumer/commercial classification and industrial based on SPIN.	EPA (2017b); EPA (2014b); CPCat (2015); NLM (2015); ECHA (2019); SPIN (2020) The 2016 and 2012 CDRs report use of DINP in consumer and commercial adhesives and sealants at concentrations by weight of less than 60 percent. Table 2-5 lists several adhesive and sealant products, including grout, caulking compounds, polyurethane injection resins, and glass filaments for coatings. NLM's HSDB indicates that one of the primary non-PVC uses of DINP is in adhesives and glues for transportation equipment, wood, and wood products as well as sealants for transportation equipment and construction. ECHA identifies use of DINP in adhesives and sealants in European countries. SPIN reports use of this chemical in (softeners for) adhesives (consumer and industrial), binding agents, fillers, padding, tightening materials, and resins for adhesive hardeners in Nordic countries.
Polymer clay, glitter boards, erasers	Arts, crafts, and hobby materials	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	DJECO (2018); Penn State Industries (2016); Pentel Co. Ltd. (2007a); EPA (2014b); CPCat (2015); NLM (2015); Danish EPA (2002); SPIN (2020) DJECO identifies use of DINP on a glitter board product. Penn State Industries identifies use of this chemical in polymer clay bricks and canes. Pentel identifies use of DINP in eraser products. The 2012 CDR reports use of DINP in consumer and commercial arts, crafts, and hobby materials. Danish EPA identifies DINP as a chemical substance discharged during the heating of clay. NLM's HSDB identifies use of this chemical in dyestuffs and pigments. SPIN reports use of DINP in coloring agents in Nordic countries.
Unknown	Automotive care products	Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b); CPCat (2015) The 2016 CDR reports use of DINP in commercial automotive care products at concentrations by weight of at least 1 percent but less than 30 percent. The 2012 CDR also reports use of DINP in commercial automotive care products.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Sealants, calendering	Building/construction materials	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b); Home Depot (2019); DeLima Associates (2015); CPCat (2015); NLM (2015); ECHA (2019); SPIN (2020) The 2016 and 2012 CDRs report use of DINP in consumer and commercial building/construction materials not covered elsewhere at concentrations by weight of less than 60 percent. The Home Depot identifies use of this chemical in a building/construction material product. NLM's HSDB identifies use of DINP in construction sealants and in calendering for flooring, roofing, and wall covering. ECHA identifies use of this chemical in building/construction work in European countries. SPIN identifies use of DINP in insulating and construction materials, including plastic construction materials, in Nordic countries. Table 2-5 lists multiple electrical tape products that contain DINP.
CBI	CBI	Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b) The 2016 and 2012 CDRs report commercial use of DINP withheld as CBI.
Solvent, penetrant	Cleaning and furnishing care products	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	Gans Ink and Supply (2018); ITW Ltd. (2018); EPA (2014b); CPCat (2015) Gans Ink and Supply reports use of DINP in a cleaning solvent for lithographic presses. ITW identifies use of this chemical in a penetrant product. The 2012 CDR reports use of DINP in consumer and commercial cleaning and furnishing care products.
Unknown	Electrical and electronic products	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b); CPCat (2015); Danish EPA (2003) The 2016 CDR reports use of DINP in consumer and commercial electrical and electronic products at concentrations by weight of less than 30 percent. The 2012 CDR also reports use of this chemical in consumer and commercial electrical and electronic products. Danish EPA identified DINP in a literature review of chemicals emitted by electrical and electronic products.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Unknown	Fabric, textile, and leather products	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b); CPCat (2015); NLM (2015) The 2016 and 2012 CDRs report use of DINP in consumer and commercial fabric, textile, and leather products not covered elsewhere at concentrations by weight of at least 1 percent but less than 60 percent. NLM's HSDB identifies use of this chemical in clothing such as jackets, raincoats, gloves, and boots. NLM also identifies use of DINP in injection molding for footwear.
Plasticizer	Floor coverings	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b); CPCat (2015); Ullmann's (2017); NLM (2015); 3M Company (2005); SPIN (2020) The 2016 CDR reports use of DINP in consumer and commercial floor coverings at concentrations by weight of less than 1 percent. The 2012 CDR also reports use of this chemical in consumer and commercial floor coverings. DINP and other phthalates have mostly replaced di(2-ethylhexyl) phthalate for use as a plasticizer in floor coverings. NLM's HSDB identifies use of this chemical in flooring. 3M Company identifies use of DINP in floor matting. SPIN identifies use of DINP in floor and wall coverings in Nordic countries. Table 2-5 lists multiple plasticizer products that contain DINP.
Fragrance, fragrance compound	Fragrances	Unknown Expected users are unknown due to the limited availability of information.	EPA (2017a); IFRA (2016); CPCat (2015); NLM (2015) EPA's Functional Use database identifies use of DINP as a fragrance, and IFRA reports use of this chemical in fragrance compounds in 2015. NLM's HSDB identifies use of DINP in perfumes.
Unknown	Furniture and furnishings	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b); CPCat (2015); NLM (2015) The 2016 and 2012 CDRs report use of DINP in consumer and commercial furniture and furnishings not covered elsewhere at concentrations by weight of at least 30 percent but less than 60 percent. NLM's HSDB identifies use of this chemical in plasticized vinyl seats.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Laboratory use	Laboratory chemical	Commercial, Industrial Users are not stated, but are expected to be commercial and industrial.	SPEX CertiPrep LLC (2017a); Veritas House (2015); SPIN (2020) SPEX CertiPrep and Veritas House report use of DINP in laboratory chemical products. SPIN identifies use of this chemical in laboratory chemicals in Nordic countries.
Unknown	Lawn and garden care products	Consumer, Commercial Expected users are based on CDR's Consumer report.	EPA (2014b); CPCat (2015); NLM (2015) The 2012 CDR reports use of DINP in consumer and commercial lawn and garden care products. NLM's HSDB identifies use of this chemical in garden hoses.
Unknown	Mixed metal stabilizer	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b) CDR reports use of DINP in consumer and commercial mixed metal stabilizers at concentrations by weight of less than 1 percent.
NKRA	Not known or reasonably ascertainable (NKRA)	Commercial, Industrial, NKRA Expected users are based on CDR's consumer/commercial classification and Industrial Processing and Use report	EPA (2017b); EPA (2014b) The 2016 and 2012 CDRs report uses of DINP that are not known or reasonably ascertainable.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Unknown	Paints and coatings	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b); DeLima Associates (2004); CPCat (2015); NLM (2015); ECHA (2019); SPIN (2020) The 2016 and 2012 CDRs report use of DINP in consumer and commercial paints and coatings at concentrations of at least 30 percent but less than 60 percent by weight. NLM's HSDB identifies use of this chemical in plastisols (spread coating for flooring and general use) and nitrocellulose lacquer coatings. NLM also indicates use of DINP in paints and varnishes in the printing and metal coating industries. ECHA identifies use of this chemical in paints, coatings, thinners, and removers in European countries. SPIN reports use of DINP in paints, lacquers, varnishes, and anti-fouling agents in Nordic countries. Table 2-5 lists multiple paint and coating products, including polyurethane elastomer products, a wood flattener.
Unknown	Personal care products	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); NLM (2015); Danish EPA (2006b); SPIN (2020) The 2016 CDR reports use of DINP in consumer and commercial personal care products at concentrations of at least 1 percent but less than 30 percent by weight. NLM's HSDB identifies use of this chemical in cosmetics and the Danish EPA identifies use in sex toys in Denmark. SPIN reports use of DINP in cosmetics.
Unknown	Petroleum refineries	Industrial Expected users are based on CDR's Industrial Processing and Use report.	EPA (2017b) The 2016 CDR reports use of DINP in petroleum refineries.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Unknown	Plastic and rubber products	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b); CPCat (2015); NLM (2015); ECHA (2019); SPIN (2020) The 2016 and 2012 CDRs report use of DINP in consumer and commercial plastic and rubber products not covered elsewhere at concentrations by weight of less than 1 percent, at least 30 percent but less than 60 percent, and at least 90 percent. NLM's HSDB identifies the main non-PVC use of DINP as polymer-related. ECHA identifies use of this chemical in consumer polymer preparations and compounds in European countries. SPIN reports use of DINP in plastic construction materials, softeners for plastic and rubber, and raw materials for the production of plastic. Table 2-5 lists multiple plastic and PVC-related products, including jackets, polyurethane pigments, sheets, splines, top coating, and vinyl shower pan liner.
Unknown	Printing inks	Unknown Expected users are unknown due to the limited availability of information.	Identity Group (2017); SPIN (2020) Table 2-5 lists multiple printing ink products that contain DINP. SPIN also reports use of this chemical in printing inks, reprographic agents, and serigraphic printing in Nordic countries.
Unknown	Toys, playground, and sporting equipment	Consumer, Commercial Expected users are based on CDR's consumer/commercial classification.	EPA (2017b); EPA (2014b); CPCat (2015); NLM (2015); Danish EPA (2005, 2006a, 2006c) CDR reports use of DINP in consumer and commercial toys, playground, and sporting equipment at concentrations of less than one percent by weight. The 2012 CDR also reports use of this chemical in consumer and commercial toys, playground, and sporting equipment. Danish EPA identified use of DINP in "slimy" (*e.g.* sticky animals), soft, and rubber toys; erasers; and in toys and childcare products made from foam plastic. NLM's HSDB identifies use of this chemical in toys.

Activity or Chemical Function	Sector or Product Type	Expected Users	Comments and References
Non-TSCA Uses			
Indirect additive, sealant, preservative	Food additives and related products	Unknown Expected users are unknown due to the limited availability of information.	FDA (2018); NLM (2015); SPIN (2020) FDA reports use of DINP as an indirect food additive used in food contact substances. NLM's HSDB identifies use of this chemical in drinking straws and in sealants for food packaging. SPIN reports use of this chemical in non-agricultural pesticides and preservatives.
Inert ingredient	Pesticides/biocides	Unknown Expected users are unknown due to the limited availability of information.	EPA (2019b, 2019a); Lanxess Corporation (2016) Lanxess Corporation identifies use of DINP in a biocide product. EPA's InertFinder lists DINP as an inert ingredient approved for nonfood use in pesticides. EPA's Office of Pesticide Programs Information Network lists DINP as a FIFRA inert ingredient in pesticide products.
DINP as Contaminant			
Adhesive, Coloration/Pigments/Dyes /Inks, Component of plastic resin or polymer process, Contaminant, Lubricant, Manufacturing additive (to facilitate manufacturing process), Plasticizer /Softener, Protective coating, Source contaminant, Stabilizers, Surfactant, Texture	Children's products		Washington State Dept. Of Ecology (2018); EPA (2017b); Danish EPA (2008) The Washington State Department Of Ecology reports 682 uses of DINP in children's products between June 1, 2012 and March 4, 2019. CDR reports use of DINP in children's fabric, textile, and leather products as well as toys, playgrounds, and sporting equipment. Danish EPA identifies use of DINP in baby products such as nursing pillows.
Recycling and Disposal			
Recycling		Unknown	EPA (2017b) In the 2016 CDR, three facilities reported recycling DINP (*e.g.,* recycled, remanufactured, reprocessed, or reused) and 17 facilities reported not recycling this chemical. Five facilities reported recycling information as CBI, four reported recycling information as NKRA, and eleven withheld this information.

2.7 Products Containing DINP

This section includes a sample of products containing DINP. When EPA identified a use in Table 2-4 that was associated with a particular product, the product was added to Table 2-5. This is not a comprehensive list of products containing DINP. In addition, some manufacturers may appear over-represented in this table. This may mean that they are more likely to disclose product ingredients online than other manufacturers but does not imply anything about use of the chemical compared to other manufacturers in this sector.

Table 2-5: Sample of Products Containing DINP

Use	Expected Users	Product	Manufacturer	Percent in Product (weight, volume, or unspecified)	Source
Accelerant (PU injection resin)	Commercial, Industrial	InjectProECO-CUT Accelerator	Aquafin, Inc.	Unknown	Aquafin Inc. (2019)
Adhesive	Unknown	PF 225 Urethane Windshield Adhesive Black	Pro Form Products Ltd.	1 – 10%, by weight	Pro Form Products Ltd. (2016)
Adhesive	Unknown	SRW Vertical Instant Lock Adhesive	SRW Products Technical Services	10 – 25%, unspecified	SRW Products Technical Services (2019)
Adhesive (automotive)	Unknown	BETASEAL™ Xpress 30 BP Urethane Adhesive	The Dow Chemical Company	> 15.0 – < 25.0 %	The Dow Chemical Company (2017)
Adhesive (automotive)	Unknown	Quick-Cure Primerless HV Urethane U418HV	Nova Scotia Company	>15.0 – <25.0%, unspecified	Nova Scotia Company (2018)
Adhesive (automotive)	Unknown	SRP 180 HV	Shat-R-Proof Corp.	10 – 30%, by weight	Shat-R-Proof Corp. (2014)
Adhesive (construction)	Unknown	EPDM Solvent-Free Bonding Adhesive	Firestone Building Products Company	30 – 31%, unspecified	Firestone Building Products Company (2018)
Adhesive, sealant	Unknown	3M™ Polyurethane Sealant 540 (Various Colors)	3M	<5%, by weight	3M Company (2019a)
Adhesive, sealant	Unknown	A-A_529 Adhesive and Sealing Compound	Mach-Dynamics	>3%, unspecified	Mach-Dynamics (2014)
Adhesive, sealant	Unknown	ClearSeal Glasklar	Sika Danmark A/S	≥25 – <40%, unspecified	Sika Danmark A/S (2018)
Adhesive, sealant	Unknown	CT1 Colours (Excluding Silver)	C-Tec N.I Limited	10 – <30%, unspecified	C-Tec N.I Limited (2017)
Adhesive, sealant	Unknown	Everbuild EB25 Crystal Clear	Sika	≥20 – <25%, by weight	Sika Corporation (2019)

Use	Expected Users	Product	Manufacturer	Percent in Product (weight, volume, or unspecified)	Source
Adhesive, sealant	Unknown	Manus Bond 76-AMC	Manus Products, Inc.	Unknown	Manus Products Inc. (2015)
Adhesive, sealant	Unknown	PU1000 Multipurpose Adhesive	Chemtron International, Inc.	0.1 – <1%, unspecified	Chemtron International Inc. (2017)
Adhesive, sealant	Unknown	U-Pol Tiger Seal - Grey	U-Pol Australia Pty Limited	5 – 23%, unspecified	U-Pol Australia Pty Limited (2019)
Adhesive, sealant (cartridge-applied)	Unknown	HS20	Hodgson Sealants (Holdings)	<10%, by weight	Hodgson Sealants (2015a)
Adhesive, sealant (cartridge-applied)	Unknown	HS20 Clear	Hodgson Sealants (Holdings)	10 – 25%, by weight	Hodgson Sealants (2015b)
Adhesive, sealant (flexible)	Unknown	wedi Joint Sealant	Wedi Corporation	5 – 20%, unspecified	Wedi Corporation (2018)
Adhesive, sealant (spacing)	Unknown	Illbruck SP036	Tremco Illbruck Produktion GmbH	20 – <30%, unspecified	Tremco Illbruck Produktion GmbH (2015)
Adhesive, sealant (spacing)	Unknown	Illbruck SP523	Tremco Illbruck Produktion GmbH	10 – <20%, unspecified	Tremco Illbruck Produktion GmbH (2016)
Adhesive, sealant (structural)	Unknown	SB 150HV - Natural	Seal Bond	1 – 5%, unspecified	Seal Bond (2018)
Adhesive, sealant, coating	Commercial, Industrial	Ultra Flex® Seam Sealer & Adhesive	Transtar Autobody Technologies	Unknown	Transtar Autobody Technologies (2015)
Biocide	Unknown	Biochek 8064	Lanxess Corporation	Unknown	Lanxess Corporation (2016)
Building/construction materials	Consumer, Commercial	Gardner Flex ‘n Fill Premium Patching Paste	Gardner-Gibson	2% by weight	Home Depot (2019); Gardner-Gibson (2015)
Calendered PVC Solid top coat w/PVC foam backing	Unknown	Diamondplate Composite™	Apache Mills, Inc.	Unknown	Apache Mills Inc. (2014)
Caulking compound	Unknown	3.0 Window, Door, Trim & Siding Sealant Crystal Clear	DAP Products Inc.	Unknown	DAP Products Inc. (2019)
Caulking compound	Unknown	SIDE Winder Advanced Polymer Sealant – All Colors	DAP Products Inc.	1 – 2.5%, by weight	DAP Products Inc. (2015)
Cleaning solvent (lithographic press)	Industrial	Gans Deep Klene	Gans Ink and Supply Co, Inc.	40 – 50%, by weight	Gans Ink and Supply (2018)

Use	Expected Users	Product	Manufacturer	Percent in Product (weight, volume, or unspecified)	Source
Coated fabrics and wall coverages	Unknown	Vinyl Coated Fabrics and Films	Acoustical Surfaces Inc.	20 – 40%, by weight	Acoustical Surfaces Inc. (1999)
Coated fiberglass fabrics	Unknown	Alpha Style 3478-VS-2	Alpha Engineered Composites LLC	9.4-10.2%, unspecified	Alpha Engineered Composites LLC (2018)
Coating (component)	Industrial	Carboguard 635 Part A	Carboline Company	0.1 – 1%, unspecified	Carboline Company (2015a)
Coating (component)	Industrial	PHENOLINE 380 PART A	Carboline Company	0.1 – 1%, unspecified	Carboline Company (2015b)
Coating (component)	Industrial	THERMALINE 4674	Carboline Norge AS	2.5 – <10%, unspecified	Carboline Norge AS (2019)
Coating (pattern)	Unknown	Freeman 90-1 Burnt Orange Pattern Coating	Freeman Manufacturing and Supply Company	1 – 5%, by weight	Freeman Manufacturing and Supply Company (2018)
Coating (vinyl buoys)	Unknown	LIFE RING touch up paint	Flexabar Corporation	Unknown	Flexabar Corporation (2015)
Curative (polyurethane)	Unknown	TC-889 PART B	BJB Enterprises, Inc.	15-40%, by weight	BJB Enterprises Inc. (2019a)
Elastomer (polyurethane)	Unknown	Part A: PMC-790	Smooth-On, Inc.	10 – 20%, by weight	Smooth-On Inc. (2018a)
Elastomer (polyurethane)	Unknown	Urethane 2718 Part A	Smooth-On, Inc.	<10%, unspecified	Smooth-On Inc. (2018b)
Elastomer (polyurethane)	Unknown	Part A: Vytaflex 20	Smooth-On, Inc.	Unknown	Smooth-On Inc. (2019)
Elastomeric polymer granules	Unknown	SoftSand™	Soft Point Industries, Inc.	~4%, unspecified	Soft Point Industries Inc. (2018)
Electrical tape	Unknown	3M™ Economy Vinyl Electrical Tape 1400, 1400C	3M	Unknown	3M Company (2014)
Electrical tape	Unknown	Scotch® Fire Retardant Electric Arc Proofing Tape 77, Black	3M	Unknown	3M Company (2018)

Use	Expected Users	Product	Manufacturer	Percent in Product (weight, volume, or unspecified)	Source
Electrical tape	Unknown	Scotch® Vinyl Electrical Color Coding Tape 35 (Blue, Brown, Gray, Green, Orange, Pink, Red, Violet, White, Yellow)	3M	<3%, by weight	3M Company (2019b)
Electrical tape	Unknown	VINI-TAPE	Denka Company Limited	25 – 30%, by weight	Denka Company Limited (2016)
Electrical tape (brush on)	Unknown	Brush On Electrical Tape Black 4 Fl.Oz	Technical Chemical Company	1 – 10%, unspecified	Technical Chemical Company (2016)
Eraser	Unknown	Clic Eraser	Pentel Co., Ltd.	Unknown	Pentel Co. Ltd. (2007a)
Eraser	Unknown	Hi-Polymer Eraser	Pentel Co., Ltd.	Unknown	Pentel Co. Ltd. (2007b)
Flattener (wood)	Unknown	B610-01006 Flattener	RPM Wood Finishes Group	1 – 10%, unspecified	RPM Wood Finishes Group (2004c)
Floor matting	Unknown	3M (TM) Nomad (Tm) Scraper Matting 9100, Gypsy Red	3M	0.5 – 3%, by weight	3M Company (2005)
Glass filaments (for coatings)	Unknown	GlasGrid	Saint-Gobain ADFOR	<20%, by weight	Saint-Gobain ADFOR (2017)
Glitter Boards	Unknown	Glitter Boards	DJECO	Unknown	DJECO (2018)
Gloss	Unknown	B101-G804 B104-G202 White Gloss Jet Spray, B101-G826 Black Gloss Jet Spray	RPM Wood Finishes Group	1 – 10%, unspecified	RPM Wood Finishes Group (2004a; 2004b)
Grout	Unknown	Aussie Grout 902	AVM Industries, Inc.	Unknown	AVM Industries Inc. (2017)
Grout	Unknown	Mountain Grout	Green Mountain International LLC	95 – 100%, by weight	Green Mountain International LLC (2008)
Grout (concrete and masonry)	Unknown	Polyfoam SLV	Polygem	≤15%, by weight	Polygem (2015)
Laboratory chemical	Unknown	Diisononyl Phthalate	Veritas House	99.5%, unspecified	Veritas House (2015)
Laboratory chemical	Unknown	Diisononyl phthalate in PE	SPEX CertiPrep LLC	0.1%, unspecified	SPEX CertiPrep LLC (2017a)

Use	Expected Users	Product	Manufacturer	Percent in Product (weight, volume, or unspecified)	Source
Laboratory chemical	Unknown	Phthalate Standard	SPEX CertiPrep LLC	0.1%, unspecified	SPEX CertiPrep LLC (2017b)
Laboratory chemical	Unknown	Phthalates in Poly(vinyl chloride)	SPEX CertiPrep LLC	3%, unspecified	SPEX CertiPrep LLC (2017c)
Laboratory chemical	Unknown	Phthalates in Polyethylene Standard w/BPA	SPEX CertiPrep LLC	3%, unspecified	SPEX CertiPrep LLC (2017d)
Molding	Unknown	PM600-002	PolySol LLC	25 – 40%, unspecified	PolySol LLC (2017)
Paint	Unknown	Castle® Cast Iron Gray Paint™	Castle Products, Inc.	1-5%, unspecified	Castle Products Inc. (2016)
Paint	Unknown	Gorilla Blue Hi-Performance Acrylic Zone Marking Paint	Aexcel Corporation	Unknown	Aexcel Corporation (2015)
Paint (aerosol, spray)	Unknown	RAL 9010 White Aerosol	Premier Aerosol Packaging, Inc.	0.1 – 1%, by weight	Premier Aerosol Packaging Inc. (2017)
Paint (and paint-related material)	Industrial	KEM AQUA® 600T Water Reducible Enamel - White	The Sherwin-Williams Company	≤5%, unspecified	Sherwin-Williams (2019)
Penetrant	Unknown	Spotcheck ® SKL-SP2	ITW Ltd.	10 – 20%, unspecified	ITW Ltd. (2018)
Pigment (polyurethane)	Unknown	Black 615	Era Polymers Pty Ltd.	>60%, by weight	Era Polymers Pty Ltd. (2015)
Plasticizer	Unknown	Diisononyl Phthalate	Megaloid Laboratories	100%	Megaloid Laboratories (2013)
Plasticizer	Unknown	Diisononyl Phthalate (DINP)	Redox Inc.	≤100%	Redox Inc. (2019)
Plasticizer	Unknown	DINP	Hanwha Chemical Co, Ltd.	100%	Hanwha Chemical Co Ltd. (2018)
Plasticizer	Unknown	PLASTHALL® DINP	The HallStar Company	100%	The HallStar Company (2015)
Plasticizer (for polymer)	Unknown	DINP	HB Chemical	100%	HB Chemical (2014)
Plastics	Industrial	186CGNSPL Pantone(R) 186 C Simulation	PolyOne Corporation	25 – 50%, unspecified	PolyOne Corporation (2018)

Use	Expected Users	Product	Manufacturer	Percent in Product (weight, volume, or unspecified)	Source
Polymer clay bricks and canes	Industrial	PSI PolyClay Canes and PSI PolyClay Bricks	Penn State Industries	<2.5%, unspecified	Penn State Industries (2016)
Printing ink	Commercial	Avery Dennison 4930 Series Screen Ink	Nazdar Company	<0.5%, by weight	Nazdar Company (2015)
Printing ink	Unknown	Stack Stamp	Identity Group	Unknown	Identity Group (2017)
Printing ink (stamps)	Unknown	Porelon Red SP Premix	Porelon	15 – 20%, unspecified	Porelon (2007)
Protective film	Unknown	Skudo Glass Advanced	Skudo LLC	10 – 20%, by weight	Skudo LLC (2013)
PVC Jacket	Unknown	DVH 20 / DVH 40	The Zippertubing Co.	10 – 20%, by weight	The Zippertubing Co (2018)
PVC Laminated Polyester	Unknown	PVC Laminated Polyester	BondCote Corporation	16%, by weight	BondCote Corporation (2014)
PVC Sheet	Unknown	LG Premium PVC High Glossy Deco Sheet (G200)	LG Chemical Ltd.	0 – 2%, by weight	LG Chemical Ltd. (2013)
PVC Sheet	Unknown	PVC Sheeting	A.M. Leonard	Unknown	A.M. Leonard (n.d.)
PVC Spline	Unknown	Serrated PVC Spline	Prime Line Products, Inc.	14%, by weight	Prime Line Products Inc. (2015)
Resin (polyurethane)	Unknown	TC-890 PART A	BJB Enterprises Inc.	10 – 30%, by weight	BJB Enterprises Inc. (2019b)
Sealant	Unknown	Coat & Seal	Selena USA, Inc.	20 – 40%, by weight	Selena USA Inc. (2015)
Sealant	Unknown	CP 606 Flexible Firestop Sealant	Hilti (Canada) Corporation	10 – 15%, by weight	Hilti (Canada) Corp. (2012)
Sealant	Unknown	DuoSil® Ultra	Siroflex Incorporated	10 – 15%, by weight	Siroflex Incorporated (2016)
Sealant	Unknown	FUSOR 800DTM	LORD Corporation	25 – 30%, unspecified	LORD Corporation (2018)
Sealant (acrylic)	Unknown	Fireseal 6	Macsim Fastenings	0 – 5%, by weight	Macsim Fastenings (2017)
Sealant (duct)	Unknown	HVAC – Acrylic Duct Sealant	Hodgson Sealants (Holdings)	<5%, by weight	Hodgson Sealants (2015c)
Sealant (pipe thread)	Unknown	Hercules Megaloc	HCC Holdings, Inc.	Unknown	HCC Holdings Inc. (2015)

Use	Expected Users	Product	Manufacturer	Percent in Product (weight, volume, or unspecified)	Source
Sealant (polyurethane)	Unknown	Tremco JS443 A, B	Tremco Illbruck Production S.A.S.	10 – <20%, unspecified	Tremco Illbruck Production S.A.S (2017a, 2017b)
Sealant (self-leveling)	Unknown	Duro-Last® Pitch-Pan Filler	Duro-Last®, Inc.	0.1 – 1%, unspecified	Duro-Last Inc. (2017)
Sealant/filler	Unknown	Aquacaulk	Hodgson Sealants (Holdings)	5 – <10%, by weight	Hodgson Sealants (2014)
Sealant/filler	Unknown	Brewers Premium Decorators' Caulk	C.Brewer & Sons Ltd.	5 – <10%, by weight	C.Brewer & Sons Ltd (2016)
Unknown	Unknown	HawkFlash LiquiCap - Component A	Ergon Asphalt & Emulsions, Inc.	<5%, unspecified	Ergon Asphalt & Emulsions Inc. (2019)
Vinyl shower pan liner	Unknown	IL PVC Compact Sheet	O'Sullivan Films, Inc.	≤40%, by weight	O'Sullivan Films Inc. (2016)

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APPENDICES

Appendix A Method for Uses and Products Tables

To compile the uses, EPA searched publicly available databases listed in Table A-1 and conducted additional Google searches to clarify uses or find current products in commerce.

Table A-1: Sources Searched for Uses of DINP

Title	Author and Year	Search Term(s)	Found Use Information? [1]
Sources searched for all use reports			
California Links to Pesticides Data	California Dept of Pesticide Regulation (2013)	28553-12-0; 68515-48-0	No
Canada Chemicals Management Plan information sheets	Government of Canada (2018)	DINP; diisononyl phthalate	No
Chemical and Product Categories	CPCat (2015)	28553-12-0; 68515-48-0	Yes
ChemView [2]	EPA (2018a)	28553-12-0; 68515-48-0	Yes
Children's Safe Product Act Reported Data	Washington State Dept. of Ecology (2018)	28553-12-0	Yes
Consumer Product Information Database (CPID)	DeLima Associates (2018)	28553-12-0; 68515-48-0	Yes
Danish surveys on chemicals in consumer products	Danish EPA (2018)	N/A, There is no search but report titles were checked for possible information on the chemical	Yes
Datamyne	Descartes Datamyne (2018)	Diisononyl phthalate	No
DrugBank	DrugBank (2018)	Diisononyl phthalate	No
European Chemicals Agency (ECHA) Registration Dossier	ECHA (2019)	28553-12-0; 68515-48-0	Yes
eChemPortal [2]	OECD (2018)	28553-12-0; 68515-48-0	Yes
Envirofacts [2]	EPA (2018b)	28553-12-0; 68515-48-0	No
Functional Use Database (FUse)	EPA (2017a)	28553-12-0; 68515-48-0	Yes
Kirk-Othmer Encyclopedia of Chemical Technology	Kirk-Othmer (2006)	DINP; Diisononyl phthalate	No
Non-Confidential 2012 Chemical Data Reporting (CDR)	EPA (2014b)	28553-12-0; 68515-48-0	Yes

Title	Author and Year	Search Term(s)	Found Use Information? [1]
Non-Confidential 2016 CDR	EPA (2017b)	28553-12-0; 68515-48-0	Yes
PubChem Compound	NLM (2019a)	28553-12-0; 68515-48-0	Yes
Safer Chemical Ingredients List (SCIL)	EPA (2018d)	28553-12-0; 68515-48-0	No
Synapse Information Resources [2]	Synapse Information Resources (n.d.)	DINP; diisononyl phthalate	No
Resource Conservation and Recovery Act (RCRA)	EPA (2018c)	DINP; diisononyl phthalate	No
Scorecard: The Pollution Information Site	GoodGuide (2011)	28553-12-0; 68515-48-0	Yes
Skin Deep Cosmetics Database	EWG (2018)	28553-12-0; 68515-48-0	No
Substances in Preparations in Nordic Countries (SPIN)	SPIN (2020)	28553-12-0; 68515-48-0	Yes
Toxics Release Inventory (TRI)	EPA (2018e)	28553-12-0; 68515-48-0	No
TOXNET [2]	NLM (2019b)	28553-12-0; 68515-48-0	Yes
Ullmann's Encyclopedia of Industrial Chemistry	Ullmann's (2000)	DINP; Diisononyl phthalate	Yes
Additional sources identified from reasonably available information			
Product SDS	See Table 2-5	Incidentally identified while researching into details of this chemical's uses and products.	Yes

1. If use information was found in the resource, it will appear in Table 2-4 unless otherwise noted.
2. This source is a group of databases; thus the exact resource(s) it led to will be cited instead of the database as whole.

Appendix B Tier 2 Uses of DINP

This appendix contains uses classified as Tier 2. These may be historic, non-TSCA use, or more anecdotal.

Table B-1. Tier 2 Uses of DINP

Sector or Product Type	Expected Users	Comments and References
Uses with Minimal Substantiation		
Automotive interior	Unknown Expected users are unknown due to the limited availability of information.	NLM (2015); Ullmann's (2007) NLM's HSDB identifies use of DINP in plasticized vinyl seats in cars. Ullmann's identifies use of DINP as a plasticizer in automotive interior trims due to its low-temperature flexibility, light and thermal stability, and processability.
Baby products	Consumer Danish EPA discovered this use through a survey of consumer products.	Danish EPA (2008) Danish EPA identifies the presence of DINP in baby products such as nursing pillows. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Fishing and aquaculture	Industrial Expected users are based on SPIN's Industrial NACE database.	SPIN (2020) SPIN identifies use of DINP in the manufacture of fishing and aquaculture in Nordic countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Forestry and logging	Industrial Expected users are based on SPIN's Industrial NACE database.	SPIN (2020) SPIN identifies use of DINP in the manufacture of forestry and logging in Nordic countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Intermediate	Unknown Expected users are unknown due to the limited availability of information.	SPIN (2020) SPIN reports use of DINP in intermediates and process regulators in Nordic countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Lubricants, greases, and release products	Consumer, Industrial Expected users are based on ECHA and SPIN databases.	ECHA (2019); SPIN (2020) ECHA identifies use of DINP in consumer and industrial lubricants, greases, and release products in European countries. SPIN reports use of this chemical in cutting fluids in Nordic countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.

Sector or Product Type	Expected Users	Comments and References
Machinery and equipment manufacture, installation, and repair.	Industrial Expected users are based on SPIN's Industrial NACE database.	SPIN (2020) SPIN reports use of DINP in the repair and installation of machinery and equipment as well as the manufacture of machinery and equipment not elsewhere classified. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Manufacture of fabricated metal products	Industrial Expected users are based on SPIN's Industrial NACE database.	SPIN (2020) SPIN identifies use of DINP in the manufacture of fabricated metal products, except machinery and equipment, in Nordic countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Manufacture of transport equipment	Industrial Expected users are based on SPIN's Industrial NACE database.	SPIN (2020) SPIN identifies use of DINP in the manufacture of transport equipment, including (the industry for) motor vehicles, trailers and semi-trailers, in Nordic countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Medical supplies	Unknown Expected users are unknown due to the limited availability of information.	NLM (2015) NLM's HSDB identifies use of DINP in clear medical film. NLM also indicates that DINP has not replaced DEHP as a main plasticizer in medical supplies.
Printing and reproduction of recorded media	Industrial Expected users are based on reporting under ECHA's use at industrial sites.	ECHA (2019); SPIN (2020) ECHA and SPIN identify use of DINP in the printing and reproduction of recorded media in European and Nordic countries, respectively. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Softeners	Industrial Expected users are based on reporting under GoodGuide's industrial uses and CPCat's source (2012 CDR Industrial Sector report).	GoodGuide (2011); CPCat (2015); SPIN (2020) GoodGuide's Pollution Scorecard identifies use of DINP as a plasticizer in industrial softeners. CPCat identifies use of DINP in industrial plasticizers. SPIN identifies use of DINP in softeners in Nordic countries.

Sector or Product Type	Expected Users	Comments and References
Solvent	Consumer Expected users are based on reporting under ECHA's consumer uses.	ECHA (2019) ECHA identifies use of DINP in general dispersant solvents in European countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Surface treatment	Unknown Expected users are unknown due to the limited availability of information.	SPIN (2020) SPIN reports use of DINP in corrosion inhibitors, foaming agents, and surface treatment in Nordic countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Transportation products	Unknown Expected users are unknown due to the limited availability of information.	CPCat (2015); NLM (2015) CPCat identifies use of DINP in transportation products as well as retail auto and tires, and retail fluids and lubricants. NLM's HSDB identifies use of this chemical in adhesives and sealants for transportation equipment.
Utility	Industrial Expected users are based on reporting under ECHA's use at industrial sites.	ECHA (2019); SPIN (2020) ECHA identifies use of DINP in electricity, steam, gas water supply, and sewage treatment in European countries. SPIN reports use of this chemical in electricity, gas, steam and air conditioning supply in Nordic countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.
Water transport	Industrial Expected users are based on SPIN's Industrial NACE database.	SPIN (2020) SPIN identifies use of DINP in the manufacture of water transport in Nordic countries. No further information on this use is available, and it is unknown whether this is an ongoing use in the United States.