

Aceton

Angelegt: 19.11.2010
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ABSCHNITT 1: Bezeichnung des Stoffs bzw. des Gemischs und des Unternehmens

1.1 Produktidentifikator

Handelsname: Aceton
REACH-Registrierungsnr.: 01-2119471330-49-XXXX
Standort Deutschland: 01-2119471330-49-0000
Standort Belgien: 01-2119471330-49-0005

1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird

Allgemeine Verwendung Neben der Verwendung als Lösungsmittel ist Aceton ein wichtiges Zwischenprodukt in der chemischen Industrie, z. B. für die Herstellung von Methylmethacrylat, Methylisobutylketon und Bisphenol A.

Identifizierte Verwendungen

1. Herstellung, Verarbeitung und Vertrieb von Stoffen und Gemischen *
2. Einsatz in Laboratorien
3. Anwendungen in Beschichtungen
4. Verwendung als Binde- und Trennmittel
5. Gummiproduktion und -verarbeitung
6. Herstellung von Polymer
7. Polymerverarbeitung
9. Verwendung in Reinigungsmitteln
10. Verwendung im Bohr- und Förderbetrieb in Öl- und Gasfeldern
11. Treibmittel
12. Bergbau-Chemikalien

* Beispiele für die Verarbeitung:
Verwendung als Zwischenprodukt,
Verwendung als Monomer etc.,
Verwendung als Lösungsmittel,
Verwendung für die Herstellung von Harzen.

1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt

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1.4 Notrufnummer

Telefon Deutschland: +49 (0)2043 / 9 58-233
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ABSCHNITT 2: Mögliche Gefahren

2.1 Einstufung des Stoffs oder Gemischs

Einstufung gemäß EG-Verordnung 1272/2008 (CLP):

Flam. Liq. 2; H225 Flüssigkeit und Dampf leicht entzündbar.
STOT SE 3; H336 Kann Schläfrigkeit und Benommenheit verursachen.
(EUH066) Wiederholter Kontakt kann zu spröder oder rissiger Haut führen.
Eye Irrit. 2; H319 Verursacht schwere Augenreizung.

Einstufung gemäß Richtlinie 67/548/EWG:

F; R11 Leichtentzündlich.
Xi; R36 Reizt die Augen.
R66 Wiederholter Kontakt kann zu spröder oder rissiger Haut führen.
R67 Dämpfe können Schläfrigkeit und Benommenheit verursachen.

2.2 Kennzeichnungselemente

Kennzeichnung (CLP)



Signalwort

Gefahr

Gefahrenhinweise

H225 Flüssigkeit und Dampf leicht entzündbar.
H319 Verursacht schwere Augenreizung.
H336 Kann Schläfrigkeit und Benommenheit verursachen.
EUH066 Wiederholter Kontakt kann zu spröder oder rissiger Haut führen.

Sicherheitshinweise

P210 Von Hitze/Funken/offener Flamme/heißen Oberflächen fernhalten. - Nicht rauchen.
P243 Maßnahmen gegen elektrostatische Aufladungen treffen.
P305+P351+P338 BEI KONTAKT MIT DEN AUGEN: Einige Minuten lang behutsam mit Wasser spülen. Vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen.
P403+P235 Kühl an einem gut belüfteten Ort aufbewahren.
P405 Unter Verschluss aufbewahren.

Kennzeichnung (67/548/EWG oder 1999/45/EG)

**F****Xi**

leichtentzündlich reizend

R-Sätze:

R 11 Leichtentzündlich.
R 36 Reizt die Augen.
R 66 Wiederholter Kontakt kann zu spröder oder rissiger Haut führen.
R 67 Dämpfe können Schläfrigkeit und Benommenheit verursachen.

S-Sätze:

S (2) Darf nicht in die Hände von Kindern gelangen.
S 9 Behälter an einem gut gelüfteten Ort aufbewahren.
S 16 Von Zündquellen fernhalten - Nicht rauchen.
S 26 Bei Berührung mit den Augen sofort gründlich mit Wasser abspülen und Arzt konsultieren.

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2.3 Sonstige Gefahren

Die Dämpfe wirken mäßig reizend auf die Schleimhäute.
In höheren Dosen narkotische Wirkung. Gefahr der metabolischen Acidose.
Nach Verschlucken: Störungen im Magen - Darmbereich.
Weitere Symptome: Kopfschmerzen, Schwindel, Übelkeit, Bewusstlosigkeit.

ABSCHNITT 3: Zusammensetzung/ Angaben zu Bestandteilen

3.1 Stoffe

Chemische Charakterisierung (Stoff):

C₃ H₆ O = H₃C-CO-CH₃

Aceton, Dimethylketon, 2-Propanone, Methyl ketone

CAS-Nummer: 67-64-1

EINECS-Nummer: 200-662-2

RTECS-Nummer: AL3150000

EU-Identifikationsnummer: 606-001-00-8

Warennummer Außenhandel:

2914 11 00

ABSCHNITT 4: Erste-Hilfe-Maßnahmen

4.1 Beschreibung der Erste-Hilfe-Maßnahmen

- Allgemeine Hinweise: Betroffenen an die frische Luft bringen, beengende Kleidung lockern und ruhig lagern. Verletzte nicht auskühlen lassen.
Bei Gefahr von Bewusstlosigkeit Lagerung und Transport in stabiler Seitenlage. Sofort Arzt hinzuziehen.
- Nach Einatmen: Betroffenen an die frische Luft bringen, beengende Kleidung lockern und ruhig lagern. Bei unregelmäßiger Atmung oder Atemstillstand sofort Atemspende oder Gerätebeatmung, ggf. Sauerstoffzufuhr. Sofort Arzt hinzuziehen.
- Nach Hautkontakt: Benetzte Kleidungsstücke, Schuhe und Strümpfe sofort ausziehen. Bei Berührung mit der Haut sofort mit viel Wasser und Seife abspülen. Anschließend Haut eincremen.
Bei Hautreizungen Arzt aufsuchen.
- Nach Augenkontakt: Sofort bei geöffnetem Lidspalt 10 bis 15 Minuten mit fließendem Wasser spülen. Anschließend unverzüglich Augenarzt aufsuchen.
- Nach Verschlucken: Bei Verschlucken kein Erbrechen herbeiführen. Sofort ärztlichen Rat einholen und Verpackung oder dieses Etikett vorzeigen.
Aktivkohle geben, um die Resorption im Magen-Darmtrakt zu reduzieren.

4.2 Wichtigste akute oder verzögert auftretende Symptome und Wirkungen

Keine Daten verfügbar

4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung

Azidose bekämpfen. Alkalireserve kontrollieren. Atmung kontrollieren.
Bei unregelmäßiger Atmung oder Atemstillstand sofort Atemspende oder Gerätebeatmung, ggf. Sauerstoffzufuhr.
Cave: Latenzzeit von mehreren Stunden. Die Ausbildung einer Pneumonie oder eines Lungenödems ist in schweren Fällen nicht auszuschließen.

ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

5.1 Löschmittel

Geeignete Löschmittel: Trockenlöschpulver, alkoholbeständiger Schaum, Kohlendioxid. Wassersprühstrahl

Aus Sicherheitsgründen ungeeignete Löschmittel:

Wasservollstrahl

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5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren

Leichtentzündlich.
Explosionsfähige Gemische mit Luft sind schon bei Normaltemperatur möglich. Auf Rückzündung achten.
Im Brandfall können entstehen: Kohlenmonoxid und Kohlendioxid.

5.3 Hinweise für die Brandbekämpfung

Besondere Schutzausrüstung bei der Brandbekämpfung:

Umgebungsluftunabhängiges Atemschutzgerät und Chemikalienschutzanzug tragen.

Zusätzliche Hinweise:

Erhitzen führt zu Drucksteigerung: Berst- und Explosionsgefahr. Gefährdete Behälter mit Sprühwasser kühlen.

Wenn gefahrlos möglich, unbeschädigte Behälter aus der Gefahrenzone entfernen.

Eindringen von Löschwasser in Oberflächengewässer oder Grundwasser vermeiden.

Brandrückstände und kontaminiertes Löschwasser müssen entsprechend den örtlichen behördlichen Vorschriften entsorgt werden.

Temperaturklasse: T1 (DIN 57165)

Explosionsgruppe: II A (DIN 57165)

Brandklasse: B

Gemische von 4% Aceton und 96% Wasser haben noch einen Flammpunkt von 54 °C.

ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren

Alle unbeteiligten Personen gegen den Wind entfernen.
Umgebungsluftunabhängiges Atemschutzgerät und Chemikalienschutzanzug tragen.
Lösemittelbeständige Schutzausrüstung empfohlen.

6.2 Umweltschutzmaßnahmen

Leck schließen, wenn ohne Gefährdung möglich.
Nicht in Kanalisation, Oberflächenwasser, Keller oder Gruben gelangen lassen.
Bei Freisetzung in die Umgebung Polizei und Feuerwehr benachrichtigen.
Alle tiefliegenden Räume abdichten. Explosionsgefahr!

6.3 Methoden und Material für Rückhaltung und Reinigung

Bei Auslaufen von größeren Mengen: Eindeichen und abpumpen. Ex-Schutz erforderlich.
Restmengen mit nicht brennbaren flüssigkeitsbindenden Materialien (trockene Erde, Sand, Vermiculit oder gemahlenem Sandstein) aufnehmen und im geschlossenen Behälter der Entsorgung zuführen.

Fließendes Gewässer: Verdünnung erfolgt rasch. Trink-, Brauch- und Kühlwasserabnehmer bei großen Mengen auslaufenden Gutes verständigen.

Stehendes Gewässer: Absperrern. Alle Zündquellen entfernen.

Zusätzliche Hinweise:

Alle Zündquellen entfernen. Dämpfe breiten sich am Boden aus. Kanalisation abdecken und Keller evakuieren. Mit viel Wasser verdünnen. Es darf nur mit explosionsgeschützten Geräten/Armaturen gearbeitet werden.

Flüssigkeit: Sehr leicht entzündlich. Flüssigkeit verdunstet sehr schnell.

Dämpfe: Sehr leicht entzündlich.

Dämpfe bilden mit Luft explosionsfähige Gemische, die schwerer als Luft sind. Sie wälzen sich am Boden entlang und können bei Zündung über weitere Strecken zurückschlagen.

Entzündung durch heiße Oberflächen, Funken und offene Flammen.

Löslichkeit in Wasser: vollständig

Gemische von 4% Aceton und 96% Wasser haben noch einen Flammpunkt von 54 °C. Bei Auslaufen von größeren Mengen ist daher mit der Entzündbarkeit von Aceton-Wasser-Gemischen zu rechnen. Es können sich über der Wasseroberfläche explosionsfähige Gemische mit Luft bilden.

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6.4 Verweis auf andere Abschnitte

nicht erforderlich

ABSCHNITT 7: Handhabung und Lagerung

7.1 Schutzmaßnahmen zur sicheren Handhabung

Hinweise zum sicheren Umgang

Für gute Be- und Entlüftung von Lager und Arbeitsplatz sorgen.
Raumluftabsaugung in Bodenhöhe vorsehen. Konzentrierte Dämpfe sind schwerer als Luft.
Aerosolbildung vermeiden. Dämpfe nicht einatmen.
Es darf nur mit explosiongeschützten Geräten/Armaturen gearbeitet werden. Keine Druckluft verwenden.

Hinweise zum Brand- und Explosionsschutz:

Erhitzen über 50 °C führt zu Drucksteigerung: Berst- und Explosionsgefahr.
Von Zündquellen fernhalten - Nicht rauchen.
Maßnahmen gegen elektrostatische Aufladungen treffen. Auf Rückzündung achten.
Innerhalb von teilweise geleerten Behältern Entstehung von explosionsfähigen Gemischen möglich.
Eine Notkühlung ist für den Fall eines Umgebungsbrandes vorzusehen.
Schweißverbot.

7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten

Anforderungen an Lagerräume und Behälter:

Behälter trocken halten. Behälter dicht geschlossen halten und an einem kühlen, gut gelüfteten Ort aufbewahren. Vor Sonneneinstrahlung schützen.
Stahl, rostfreier Stahl und Aluminium sind als Behälter beständig. Kupfer kann angegriffen werden.
Ungeeignetes Material für Behälter/Anlagen: Kunststoffe können angegriffen werden.

Zusammenlagerungshinweise

Nicht mit brandfördernden und selbstentzündlichen Stoffen sowie leichtentzündlichen Feststoffen zusammen lagern.

Sonstige Hinweise:

Peroxidbildung ist möglich, wenn das Produkt Licht und Luft ausgesetzt wird.
Innerhalb von teilweise geleerten Behältern Entstehung von explosionsfähigen Gemischen möglich.
Bei Lagerung im Freien: Nur für Einsatz in Zone 1 zugelassene Geräte verwenden.
Bei Lagerung in Räumen: Nur für Einsatz in Zone 2 zugelassene Geräte verwenden.

Lagerklasse VCI:

3 = Entzündliche flüssige Stoffe

7.3 Spezifische Endanwendungen

Lösemittel

ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

Sämtliche expositionsrelevanten Informationen (menschliche Gesundheit und Umwelt) sind in den Anhängen dieses Sicherheitsdatenblattes zusammengefasst.

8.1 Zu überwachende Parameter

Art	Grenzwert
Deutschland, BGW Langzeit	Aceton (Urin; Expositionsende bzw. Schichtende) 80 ppm
Europa, IOELV: TWA	1210 mg/m ³ ; 500 ppm
Deutschland, AGW Langzeit	1200 mg/m ³ ; 500 ppm
Deutschland, AGW Kurzzeit	2400 mg/m ³ ; 1000 ppm

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DNEL	DNEL Langzeit, Arbeiter, dermal: 186 mg/kg bw/d. DNEL Kurzzeit, Arbeiter, inhalativ: 2420 mg/m ³ DNEL Langzeit, Arbeiter, inhalativ: 1210 mg/m ³ DNEL Langzeit, Verbraucher, oral: 62 mg/kg bw/d. DNEL Langzeit, Verbraucher, dermal: 62 mg/kg bw/d. DNEL Langzeit, Verbraucher, inhalativ: 200 mg/m ³
PNEC	PNEC Wasser (Süßwasser): 10,6 mg/L. PNEC Wasser (Meerwasser): 1,06 mg/L. PNEC Wasser (periodische Freisetzung): 21 mg/L. PNEC Sediment (Süßwasser): 30,4 mg/kg dwt. PNEC Sediment (Meerwasser): 3,04 mg/kg dwt. PNEC Boden: 33,3 mg/kg dwt. PNEC Kläranlage: 100 mg/L.

8.2 Begrenzung und Überwachung der Exposition

Ex-Schutz erforderlich. Für gute Belüftung des Arbeitsraumes und/oder Absaugeinrichtung am Arbeitsplatz sorgen.

Begrenzung und Überwachung der Exposition am Arbeitsplatz

Sämtliche Informationen zu relevanten Expositionsszenarien einschließlich Verwendungsbedingungen und Risikomanagementmaßnahmen sind in 'Annex II:' aufgeführt.

Atemschutz: Bei kurzzeitiger Exposition oder im Schadensfall: Filtergerät Typ AX (EN 371).
Umgebungsluftunabhängiges Atemschutzgerät für Notfälle bereithalten.

Handschutz: Schutzhandschuhe gemäß EN 374.
Handschuhmaterial: Butylkautschuk - Schichtstärke $\geq 0,5$ mm.
Durchbruchzeit (maximale Tragedauer): >480 min.
Die Angaben des Herstellers der Schutzhandschuhe zu Durchlässigkeiten und Durchbruchzeiten sind zu beachten.

Augenschutz: Dicht schließende Schutzbrille gemäß EN 166.

Körperschutz: Lösemittelbeständige Schutzkleidung tragen.
Empfehlung: Flammenschutzkleidung, antistatisch.
Sicherheitsschuhe gemäß EN 345-347.

Schutz- und Hygienemaßnahmen:
Vor den Pausen und bei Arbeitsende Hände waschen.
Berührung mit den Augen und der Haut vermeiden.
Bei der Arbeit nicht essen, trinken oder rauchen.
Augenspülflasche oder Augendusche im Arbeitsraum bereitstellen.

Begrenzung der Verbrauchereexposition

Sämtliche Informationen zu relevanten Expositionsszenarien einschließlich Verwendungsbedingungen und Risikomanagementmaßnahmen sind in 'Annex II:' aufgeführt.

ABSCHNITT 9: Physikalische und chemische Eigenschaften

9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften

Form:	flüssig
Farbe:	farblos, klar
Geruch:	süßlich aromatisch
Siedepunkt / Siedebereich:	56,05 °C
Schmelzpunkt / Schmelzbereich:	-94,7 °C
Flammpunkt / Flammbereich:	-17 °C (c.c.)
Zündtemperatur:	465 °C
Explosionsgrenzen:	UEG (untere Explosionsgrenze): 2,50 Vol-% OEG (obere Explosionsgrenze): 14,30 Vol-%

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Brechungsindex: bei 20 °C: 1,358-1,359
Dampfdruck: bei 20 °C: 240 hPa
bei 50 °C: 800 hPa
Dichte: bei 20 °C: 0,79 g/mL
pH-Wert: bei 10 g/L: neutral; 50% in H₂O: 5-6
Löslichkeit: bei 20 °C: in organischen Lösungsmitteln 100 %
Wasserlöslichkeit: bei 20 °C: beliebig mischbar
Verteilungskoeffizient n-Octanol/Wasser: -0,24 log P(o/w)
Eine Bioakkumulation ist nicht zu erwarten (log P(o/w) <1).
Viskosität, dynamisch: bei 20 °C: 0,32 mPa*s

9.2 Sonstige Angaben

Molgewicht: 58,09 g/mol
Geruchsschwelle: 47,5 mg/m³
Relative Dampfdichte bei 20 °C (Luft = 1): 2,1
Dissoziationskonstante: pK_a = 24,2 bei 25 °C
Verdunstungszahl: 2,0 (Ether = 1)
Verdunstungszahl 5,6 (n-BuAc = 1)
Sättigungskonzentration bei 20 °C: 550 g/m³

ABSCHNITT 10: Stabilität und Reaktivität

10.1 Reaktivität

Aceton reagiert in Gegenwart von Basen.

10.2 Chemische Stabilität

Dämpfe bilden mit Luft explosionsfähige Gemische, die schwerer als Luft sind. Sie wälzen sich am Boden entlang und können bei Zündung über weitere Strecken zurückschlagen.
Elektrostatisch aufladbar.

10.3 Möglichkeit gefährlicher Reaktionen

Keine gefährlichen Reaktionen bekannt.

10.4 Zu vermeidende Bedingungen

Leichtentzündlich. Konzentrierte Dämpfe sind schwerer als Luft.
Bildet mit Luft explosive Gemische, auch in leeren, ungereinigten Behältern.
Bei Mischung mit chlorierten Kohlenwasserstoffen kann sich unter Lichteinfluß stark reizendes Chloraceton bilden.

10.5 Unverträgliche Materialien

Greift viele Kunststoffe und Gummi an. Bei Kontakt mit Bariumhydroxid, Natriumhydroxyd und vielen anderen alkalischen Stoffen kann Kondensation eintreten.
Kontakt mit starken Oxidationsmitteln, Laugen und Aminen vermeiden.

10.6 Gefährliche Zersetzungsprodukte

Im Brandfall können entstehen: Kohlenmonoxid und Kohlendioxid.

ABSCHNITT 11: Toxikologische Angaben

11.1 Angaben zu toxikologischen Wirkungen

Akute Toxizität: LD50 Ratte, oral: 5800 mg/kg bw (OECD 401)
LD50 Ratte, dermal: > 15800 mg/kg bw
LC50 Ratte, inhalativ: 76 mg/L/4h

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- Nach Einatmen: Dämpfe können Schläfrigkeit und Benommenheit verursachen.
Zur Entwicklung offensichtlich toxikologisch relevanter Symptome beim Menschen sind unfallbedingt extrem große Mengen von Dämpfen durch Inhalation oder von Flüssigkeit durch Verschlucken aufzunehmen (z.B. einige Tausend ppm Acetondämpfe).
- Nach Verschlucken: Störungen im Magen - Darmbereich.
- Nach Hautkontakt: Reizend. Wiederholter Kontakt kann zu spröder oder rissiger Haut führen.
Wiederholte Exposition kann auf Grund der entfettenden Eigenschaften zu Trockenheit der Haut und Rissen führen.
Es gibt keine Anzeichen einer sensibilisierenden Wirkung bei Menschen.
- Nach Augenkontakt: Reizend.
Spezifische Symptome im Tierversuch (Kaninchen): reizend (OECD 405)

Allgemeine Bemerkungen

Mutagenität:
Bakterielle Mutagenität: nicht mutagen (OECD 471)
Chromosomale Aberrationen, in vitro (OECD 473): negativ
Genmutationen Säugerzellen, in vitro (OECD 476): negativ
Mikrokerntest in vivo Maus/Hamster (non-Guideline): negativ

Karzinogenität:
Nicht karzinogen bei Langzeitexposition (Maus, dermal).

Reproduktionstoxizität:
- Wirkung auf die Fruchtbarkeit:
Keine Beeinträchtigung der Fortpflanzungsfähigkeit im Tierversuch.
- Entwicklungsschädigung:
Keine Entwicklungsschädigung (Inhalation bei Ratte, Maus, OECD 414).

Weitere Symptome:
Brennen der Augen und der Haut. Müdigkeit, Übelkeit, Bewusstlosigkeit.
Chronische Schäden sind nicht bekannt. Schwache Hautresorption.
Kurzeinwirkung: 10000 ppm erwiesen sich als verträglich.
Nach 30 bis 60 Minuten zeigten sich keine Symptome.

ABSCHNITT 12: Umweltbezogene Angaben

12.1 Toxizität

- Aquatische Toxizität:
- Akute Wirkungen:
- Fischtoxizität:
- Süßwasserarten: 96h LC50 (Oncorhynchus mykiss (Regenbogenforelle)): 5540 mg/L
 - marine Spezies: 96h LC50 (Alburnus alburnus (Ukelei)): 11000 mg/L
- Toxizität bei wirbellosen Arten:
- Süßwasserarten: 48h EC50 (Daphnia pulex (Wasserfloh)): 8800 mg/L
 - marine Spezies: 24h EC50 (Artemisia salina): 2100 mg/L
- Algentoxizität:
- Süßwasserarten: 8h NOEC (Microcystis aeruginosa): 530 mg/L/8 d.
 - marine Spezies: 96h NOEC (Prorocentrum minimum): 430 mg/L
- Bakterientoxizität:
EC 12: (30 min; Belebtschlamm; OECD 209): 1000 mg/L
- Langzeiteffekte:
Langzeit-Toxizität bei wirbellosen Organismen:
28-Tage NOEC (Daphnia pulex (Wasserfloh); Fortpflanzung: 2212 mg/L
Zu Langzeit-Effekten bei Fischen und Algen stehen keine Informationen zur Verfügung.
Langzeiteffekte sind für Wasserorganismen dank der schnellen Elimination des Produktes aus Wasser nicht relevant.
- Wassergefährdungsklasse:
1 = schwach wassergefährdend (WGK-Katalognummer 6)

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12.2. Persistenz und Abbaubarkeit

Sonstige Hinweise: Abiotischer Abbau:
DT50, 19-114 d (Luft, Indirekter photooxidativer Abbau durch Reaktion mit OH-Radikalen.)
Abiotischer Abbau: keine (Wasser, Hydrolyse)
Biologischer Abbau: 91 %/28 d (OECD 301B).
ThSB 84 %/5 d. (BOD5, APHA 219).
CSB: 2,21 gO₂/g
Das Produkt ist biologisch leicht abbaubar.

Verhalten in Kläranlagen: In Belebtschlamm: 100 %/ 4 d (anaerobe Bedingungen; Warburg Respirometer)

12.3 Bioakkumulationspotenzial

Biokonzentrationsfaktor (BCF)
3 (berechnet, BCFWIN v2.17)

12.4 Mobilität im Boden

Adsorptionskoeffizient Boden (K_d) : 1,5 L/kg, bei 20 °C.
Der Adsorptionskoeffizient zeigt, dass sich Aceton in Böden mobil verhält und vom Bodenwasser transportiert werden kann.
Flüchtigkeit:
Henry-Konstante: 2,929-3,070 Pa*m³/mol (25 °C Wasser).
Henry-Konstante: 3,311 Pa*m³/mol (25 °C Meerwasser).
Experimentell bestimmte Henry-Konstanten weisen auf eine moderate Flüchtigkeit aus Wasser hin.

12.5 Ergebnisse der PBT- und vPvB-Beurteilung

Dieser Stoff erfüllt nicht die PBT-/vPvB-Kriterien der REACH-Verordnung, Annex XIII.

12.6 Andere schädliche Wirkungen

Allgemeine Hinweise: Terrestrische Toxizität:
48h LD50 (Eisenia fetida): 0,1-1 µg/cm³
48h LD50 (Ambystoma mexicanum): 20,000 mg/L
48h LD50 (Xenopus laevis): 24,000 mg/L
In einer Studie nach OECD-Prüfrichtlinie 207 (Regenwurm, Prüfung der akuten Toxizität: Filterpapier-Kontakttest) wies Aceton eine mäßige Toxizität gegenüber Regenwürmern (Eisenia fetida) auf. In weiteren Kurzzeit-Toxizitätsstudien wiesen Axolotl (Ambystoma mexicanum) und Larven des Krallenfrosches (Xenopus laevis larvae), die Aceton unter statischen Bedingungen in abgedeckten Glasgefäßen ausgesetzt wurden, 48-h-LC50-Werte von jeweils 20 000 mg/L und 24 000 mg/L auf.
Nicht in das Grundwasser, in Gewässer oder in die Kanalisation gelangen lassen.

ABSCHNITT 13: Hinweise zur Entsorgung

13.1 Verfahren der Abfallbehandlung

Produkt

Abfallschlüsselnummer 07 01 04* = Abfälle aus Herstellung, Zubereitung, Vertrieb und Anwendung (HZVA) organischer Grundchemikalien: organische Lösemittel, halogenfrei
* = Die Entsorgung ist nachweispflichtig.

Empfehlung: Sondermüllverbrennung mit behördlicher Genehmigung.
Darf nicht zusammen mit Hausmüll entsorgt werden.

Verpackung

Empfehlung: Entsorgung gemäß den behördlichen Vorschriften.
Kontaminierte Verpackungen sind wie der Stoff zu behandeln.
Nicht kontaminierte und restentleerte Verpackungen können einer Wiederverwertung zugeführt werden.

EU-SICHERHEITSDATENBLATT

gemäß Verordnung (EG) Nr. 1907/2006 und Verordnung (EG) Nr. 453/2010 (REACH)

INEOS Phenol

Aceton

Angelegt: 19.11.2010
Bearbeitet: 30.01.2011

Gedruckt: 15.03.2011
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ABSCHNITT 14: Angaben zum Transport

14.1 UN-Nummer

1090

14.2 Ordnungsgemäße UN-Versandbezeichnung

ADR/RID, ADN: UN 1090, ACETON
IMDG, IATA: UN 1090, ACETONE

14.3 Transportgefahrenklassen

ADR/RID, ADN: Klasse 3, Code: F1
IMDG: Class 3, Code -
IATA: Class 3

14.4 Verpackungsgruppe

II

14.5 Umweltgefahren

Marine Pollutant No

14.6 Besondere Vorsichtsmaßnahmen für den Verwender

Landtransport (ADR/RID)

Warntafel: ADR/RID: Gefahrnummer 33, UN-Nummer 1090
Gefahrzettel 3
Begrenzte Mengen 1 L
EQ E2
Verpackung: Anweisungen P001 IBC02 R001
Sondervorschriften für die Zusammenpackung MP19
Ortsbewegliche Tanks: Anweisungen T4
Ortsbewegliche Tanks: Sondervorschriften TP1
Tankcodierung LGBF
Tunnelbeschränkungscode: D/E



Binnenschifftransport (ADN)

Gefahrzettel 3
Begrenzte Mengen 1 L
EQ E2
Beförderung zugelassen T
Ausrüstung erforderlich PP - EX - A
Lüftung VE01

Seeschifftransport (IMDG)

EmS: F-E, S-D
Sondervorschriften -
Begrenzte Mengen 1 L
EQ E2
Verpackung: Anweisungen P001
Verpackung: Vorschriften -
IBC: Anweisungen IBC02
IBC: Vorschriften -
Tankanweisungen: IMO T3
Tankanweisungen: UN T4
Tankanweisungen Vorschriften TP1
Stowage and segregation Category E.
Properties and observations Colourless, clear liquid, with a characteristic mint-like odour. Flashpoint: -20°C to -18°C c.c. Explosive limits: 2.5% to 13%. Miscible with water.

EU-SICHERHEITSDATENBLATT

gemäß Verordnung (EG) Nr. 1907/2006 und Verordnung (EG) Nr. 453/2010 (REACH)

INEOS Phenol

Aceton

Angelegt: 19.11.2010
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Lufttransport (IATA)

Hazard	Flamm. liquid
EQ	E2
Passenger Ltd.Qty.:	Y341 - Maximum quantity: 1 L
Passenger:	353 - Maximum quantity: 5 L
Cargo:	364 - Maximum quantity: 60 L
ERG	3H

14.7 Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens 73/78 und gemäß IBC-Code

Keine Daten verfügbar

ABSCHNITT 15: Rechtsvorschriften

15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch

Nationale Vorschriften - Deutschland

Lagerklasse VCI: 3 = Entzündliche flüssige Stoffe

Wassergefährdungsklasse:

1 = schwach wassergefährdend (WGK-Katalognummer 6)

Störfallverordnung: Nr. 7b

Hinweise zur Beschäftigungsbeschränkung:

Beschäftigungsbeschränkungen für Jugendliche beachten.

Beschäftigungsbeschränkungen für werdende und stillende Mütter beachten.

Gefahrengruppe A, HA

Schutzstufe

2

Die in diesem Sicherheitsdatenblatt angegebene Schutzstufe berücksichtigt keine speziellen Verhältnisse am Arbeitsplatz und muss ggf. angepasst werden.

Nationale Vorschriften - Schweiz

Gehalt an flüchtigen organischen Verbindungen (VOC):

100 Gew.-% = 790 g/L

Sonstige Vorschriften, Beschränkungen und Verordnungen:

(gemäß Stoff-Positivliste der flüchtigen organischen Verbindungen (VOC), Version 8.10.2002, Dok. 814.018)

Nationale Vorschriften - Großbritannien

DG-EA-Code (Hazchem): •2YE

Nationale Vorschriften - EG-Mitgliedstaaten

Gehalt an flüchtigen organischen Verbindungen (VOC):

100 Gew.-% = 790 g/L

EU-SICHERHEITSDATENBLATT

gemäß Verordnung (EG) Nr. 1907/2006 und Verordnung (EG) Nr. 453/2010 (REACH)

INEOS Phenol

Aceton

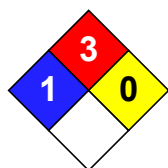
Angelegt: 19.11.2010
Bearbeitet: 30.01.2011

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Nationale Vorschriften - USA

TSCA Inventory: listed
TSCA HPV: not listed
Clean Air Act:
SOCMI Chemical: yes
Other Environmental Laws:
CERCLA: RQ 5000 lbs.
RCRA Hazardous Wastes: Code U002
RCRA Groundwater Monitoring: Methods 8240 / PQL 100
NIOSH Recommendations:
Occupational Health Guideline: 0004*

Gefahrbewertungssysteme



NFPA Hazard Rating:
Health: 1 (Slight)
Fire: 3 (Serious)
Reactivity: 0 (Minimal)
HMIS Version III Rating:
Health: 1 (Slight)
Flammability: 3 (Serious)
Physical Hazard: 0 (Minimal)
Personal Protection: X = Consult your supervisor

HEALTH	1
FLAMMABILITY	3
PHYSICAL HAZARD	0
	X

Nationale Vorschriften - Canada

CAS 67-64-1 is listed on Canada's DSL and Ingredient Disclosure Lists.
Classification: B2, D2B

Nationale Vorschriften - Japan

MITI: 2-542

15.2 Stoffsicherheitsbeurteilung

Eine Stoffsicherheitsbeurteilung wurde für diesen Stoff durchgeführt.

ABSCHNITT 16: Sonstige Angaben

Weitere Informationen

Grund der letzten Änderungen:

Änderung in Abschnitt 14: ADR 2011, IATA 2011

Literatur:

REACH Registration Dossier Acetone. P&D-REACH Consortium, 2010.

BG Chemie:

- Merkblatt M004 'Reizende Stoffe/Ätzende Stoffe'
- Merkblatt M017 'Lösemittel'
- Merkblatt M051 'Gefährliche chemische Stoffe'

Datenblatt ausstellender Bereich

Ansprechpartner: siehe Kapitel 1, Auskunft gebender Bereich.

Die Angaben in diesem Datenblatt sind nach bestem Wissen zusammengestellt und entsprechen dem Stand der Kenntnis zum Überarbeitungsdatum. Sie sichern jedoch nicht die Einhaltung bestimmter Eigenschaften im Sinne der Rechtsverbindlichkeit zu.

Exposure and Risk Assessment

- Annex I Worker Exposure and Risk Assessment
- Annex II Consumer Exposure and Risk Assessment
- Annex III Environmental Exposure and Risk Assessment
- Annex IV Environmental Exposure Calculation Tool

Acetone - Quantitative exposure and risk assessment for human health

Worker exposure

Shown are the result of the quantitative exposure and risk assessment prepared based on the Cefic tool “GES Worker Chemical Safety Assessment (CSA) Template”.

This tool can be downloaded from the Cefic website:

<http://cefic.org/templates/shwPublications.asp?HID=750&T=806>

The report is divided in the two worker subgroups:

1. Industrial and
2. Professional.

For both subgroups different uses were identified and presented as follows:

1. List of identified GES (Generic Exposure Scenarios),
2. Summary of identified Process categories (PROCs)
3. The actual exposure scenarios

The exposure scenarios include five chapters:

1. Identification [physico-chemical substance properties, reference values (DNELs), general risk management measures (RMMs) which consider the physico-chemical properties or local hazard effects of the substance]
2. Proposed risk management measures (RMMs) and operational conditions (OCs)
3. Inhalation exposure estimations
4. Dermal exposure estimations
5. Risk characterisation ratio (RCR)

Please note: Recurring PROCs means, that several options for safe use are available.

Consumer exposure

Shown are the result of the quantitative exposure and risk assessment prepared based on the “ESIG GES Consumer Tool”. This tool can be downloaded from the ESIG website:

<http://www.esig.org/en/regulatory-information/reach/ges-library/consumer-gess>

The report presents the identified uses as follows:

4. List of identified GES (Generic Exposure Scenarios),
5. Summary of identified PCs
6. the actual exposure scenarios include the operational conditions (OCs) and risk management measures (RMMs) for safe use

Identified Industrial Generic Exposure Scenarios (GESs) of Acetone

GES No. EC No. CAS No.	Subsector	Main SU	Description	PROC	ERC	Acetone
						200-662-2 67-64-1
1	Manufacture, Processing and Distribution of substances and mixtures	All Industrial Uses (SU3)	Manufacture, Processing (see examples below ¹), Formulation and Distribution of the substance or mixtures. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15	ERC1, ERC2, ERC4, ERC6a ERCs are to be checked with the ECT tool	x
2	Use in laboratories	All Industrial Uses (SU3)	Use of the substance within laboratory settings, including material transfers and equipment cleaning	PROC10, PROC15	ERC4 ERCs are to be checked with the ECT tool	x + PROC19
3	Uses in Coatings	All Industrial Uses (SU3)	Covers the use in coatings (paints, inks, adhesives, and production of textiles, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.	PROC5, PROC8a, PROC10, PROC13	ERC4 ERCs are to be checked with the ECT tool	x + PROC1, PROC2, PROC3, PROC4, PROC7, PROC8b, PROC9, PROC15, PROC19
4	Use as binders and release agents	All Industrial Uses (SU3)	Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting, and handling of waste.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13	ERC5 ERCs are to be checked with the ECT tool	x
5	Rubber production and processing	All Industrial Uses (SU3)	Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14	ERC6d ERCs are to be checked with the ECT tool	x

GES No.	Subsector	Main SU	Description	PROC	ERC	Acetone
EC No.						200-662-2
CAS No.						67-64-1
6	Polymer manufacturing	All Industrial Uses (SU3)	Manufacturing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15	ERC6d ERCs are to be checked with the ECT tool	x
7	Polymer processing	All Industrial Uses (SU3)	Processing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15	ERC6d ERCs are to be checked with the ECT tool	x
9	Use in Cleaning Agents	All Industrial Uses (SU3)	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19	ERC4 ERCs are to be checked with the ECT tool	x
10	Use in Oil field drilling and production operations	All Industrial Uses (SU3)	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers.	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b	ERC 4 ERCs are to be checked with the ECT tool	x
11	Blowing agents	All Industrial Uses (SU3)	Use as a blowing agent for rigid and flexible foams, including material transfers, mixing and injection, curing, cutting, storage and packing	PROC1, PROC2, PROC3, PROC8b, PROC9, PROC12	ERC4, (ERC10a) ERCs are to be checked with the ECT tool	x
12	Mining chemicals	All Industrial Uses (SU3)	Covers the use of the substance in extraction processes at mining operations, including material transfers, winning and separation activities, and substance recovery and disposal.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8b, PROC9	ERC8d ERCs are to be checked with the ECT tool	x

¹ Examples for processing: use as intermediate, use as monomer etc. use as solvent, use for the manufacturing of resins

² Polymer Examples: FRP, UV, VE

Please note also: PC's and AC's are only for consumer. For checking ERC's please use the respective environmental calculation tool (ECT) ECT Acetone or ECT Phenol or ECT Cumene or ECT AMS or ECT ACP

Acetone - Industrial

2010-08-23

Identified Industrial PROCs

PROC No.	Acetone
EC No.	200-662-2
CAS No.	67-64-1
PROC1	x
PROC2	x
PROC3	x
PROC4	x
PROC5	x
PROC6	x
PROC7	x
PROC8a	x
PROC8b	x
PROC9	x
PROC10 (2 uses)	x
PROC12	x
PROC13	x
PROC14	x
PROC15	x
PROC19	x
Sum	16

Generic Exposure Scenario:			
Substance specific information		Reference Values	
Substance		DNEL worker - inhalation (long term)	500 ppm
CASnr	67-64-1	DNEL worker - inhalation (short term)	ppm
Substance volatility:	233 hPA	DNEL worker - dermal (long term)	186 mg/kg/day
TRA volatility range	high		
physical property	liquid		
Section 1		Exposure Scenario Title	
Exposure Scenario	Main sector of Use: SU3 = All Industrial Uses		
Processes, tasks, activities covered	All Industrial Processes relevant for Acetone and Acetone containing products.		
Life Cycle Stage / Sector of Use	SU3 = All Industrial Uses		
Applicable Use Descriptors (PROC or PC)	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15, PROC19		
Applicable Use Descriptors	ERCs and local conditions are to be checked with the Excel tool ECT Acetone		
Default Operational Conditions			
Product characteristics			
Acute Hazard	R phrases: 11-Highly flammable, 36-Irritating to eyes, 66-Repeated exposure may cause skin dryness or cracking, 67-Vapours may cause drowsiness and dizziness		
General measures	<p>Locate bulk storage outdoors [E2]</p> <p>Use suitable eye protection [PPE26]</p> <p>If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes [PPE20]</p> <p>Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]</p>		
concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].		
physical form of product	Liquid, vapour pressure > 10 kPa [OC5].		
frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]		
other Operational Conditions of use	Assumes a good basic standard of occupational hygiene is implemented [G1]. ;		

Section 2	Operational conditions and risk management measures
Section 2.1	Control of environmental exposure
Product characteristics	substance is a unique structure, ketone, readily biodegradable
Amounts used	Annual site tonnage (tonnes/year): please use the Excel-Tool 'ECT Acetone' to calculate your maximum tonnage/year
Frequency and duration of use	Emission Days (days/year): 360d/y
Other Operational Conditions of use affecting environmental exposure	Indoor/Outdoor use
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Common practices vary across sites thus conservative process release estimates used. Typical technical measures are closed systems or scrubbers or charcoal adsorbers. Typical onsite offgas treatment technology provides removal efficiency of 90 %
Organisation measures to prevent/limit release from site	Common practices vary across sites thus conservative process release estimates used. Please use the Excel-Tool 'ECT Acetone' to check your local conditions.
Conditions and measures related to municipal sewage treatment plant	Please use the Excel-Tool 'ECT Acetone' to check your local conditions.
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable regulations
Conditions and measures related to external recovery of waste	External treatment and disposal of waste should comply with applicable regulations
Other environmental control measures additional to above	none
Section 2.2	Control of worker exposure
	see chapter RMMs
Section 3	Exposure Estimation
3.1. Health	GES Worker Chemical Safety Assessment (CSA) Template http://cefic.org/templates/shwPublications.asp?HID=750
3.2. Environment	ECT Acetone http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	<i>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.</i>
4.2. Environment	<i>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.</i>

Generic Exposure Scenario: Industrial Processes relevant for Acetone and Acetone containing products					Risk Management Measures (RMMs)
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial - SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial - SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial - SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial - SU3	Process sampling [CS2]. ; (open systems) [CS108]		
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial - SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	
6	PROC 6 -Calendering operations	Industrial - SU3	Calendering (including Banburys) [CS64]		
7	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].	with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].
8	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		Ensure operation is undertaken outdoors [E69].
9	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]
10	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	
11	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	

Generic Exposure Scenario:		Industrial Processes relevant for Acetone and Acetone containing products			Risk Management Measures (RMMs)
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH
12	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial - SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	
13	PROC 10 - Roller application or brushing	Industrial - SU3	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	
14	PROC 10 - Roller application or brushing	Industrial - SU3	Equipment cleaning and maintenance [CS39].		
15	PROC 12 - Use of blow agents for foam production	Industrial - SU3	Foaming [CS132].	Production of foam-based objects [CS125].	
16	PROC 13 -Treatment of articles by dipping and pouring	Industrial - SU3	Dipping, immersion and pouring [CS4].		
17	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial - SU3	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]		
18	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial - SU3	Laboratory activities [CS36].		
19	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Industrial - SU3	Hand application - fingerpaints, pastels, adhesives [CS72]		Wear suitable gloves tested to EN374 [PPE15].

Generic Exposure Scenario: Industrial Processes relevant for Acetone and Acetone containing products					Inhalation Exposure								
No	Use Descriptor (PROCS)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial - SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	0.01								0.01
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial - SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	50.00								50
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial - SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	100.00								100
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial - SU3	Process sampling [CS2]. ; (open systems) [CS108]		100.00								100
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial - SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	250.00								250
6	PROC 6 -Calendering operations	Industrial - SU3	Calendering (including Banburys) [CS64]		250.00								250
7	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].	with local exhaust ventilation [CS109]	500.00	95.00							25
8	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		500.00		30.00						350
9	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		500.00						half mask		50
10	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	250.00								250
11	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	150.00								150
12	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial - SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	200.00								200
13	PROC 10 - Roller application or brushing	Industrial - SU3	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	250.00								250

Generic Exposure Scenario: Industrial Processes relevant for Acetone and Acetone containing products					Inhalation Exposure								
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
14	PROC 10 - Roller application or brushing	Industrial - SU3	Equipment cleaning and maintenance [CS39].		250.00								250
15	PROC 12 - Use of blow agents for foam production	Industrial - SU3	Foaming [CS132].	Production of foam-based objects [CS125].	100.00								100
16	PROC 13 -Treatment of articles by dipping and pouring	Industrial - SU3	Dipping, immersion and pouring [CS4].		250.00								250
17	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial - SU3	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]		50.00								50
18	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial - SU3	Laboratory activities [CS36].		50.00								50
19	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Industrial - SU3	Hand application - fingerpaints, pastels, adhesives [CS72]		250.00								250

Generic Exposure Scenario: Industrial Processes relevant for Acetone and Acetone containing products					Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial - SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	0.34						0.34
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial - SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	1.37						1.37
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial - SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	0.34						0.34
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure	Industrial - SU3	Process sampling [CS2]. ; (open systems) [CS108]		6.86						6.86
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial - SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	13.71						13.71
6	PROC 6 -Calendering operations	Industrial - SU3	Calendering (including Banburys) [CS64]		27.43						27.43
7	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].	with local exhaust ventilation [CS109]	42.86	0.05					2.14
8	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		42.86						42.86
9	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		42.86						42.86
10	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	13.71						13.71
11	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	6.86						6.86
12	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial - SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	6.86						6.86

Generic Exposure Scenario: Industrial Processes relevant for Acetone and Acetone containing products					Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
13	PROC 10 - Roller application or brushing	Industrial - SU3	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	27.43						27.43
14	PROC 10 - Roller application or brushing	Industrial - SU3	Equipment cleaning and maintenance [CS39].		27.43						27.43
15	PROC 12 - Use of blow agents for foam production	Industrial - SU3	Foaming [CS132].	Production of foam-based objects [CS125].	0.34						0.34
16	PROC 13 -Treatment of articles by dipping and pouring	Industrial - SU3	Dipping, immersion and pouring [CS4].		13.71						13.71
17	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial - SU3	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]		0.34						0.34
18	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial - SU3	Laboratory activities [CS36].		0.34						0.34
19	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Industrial - SU3	Hand application - fingerpaints, pastels, adhesives [CS72]		141.43			gloves			28.29

Generic Exposure Scenario: Industrial Processes relevant for Acetone and Acetone containing products					Risk Characterization		
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)
1	PROC 1 - Use in closed process, no likelihood of exposure	Industrial - SU3	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	0.00002	0.002	0.002
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Industrial - SU3	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	0.10	0.01	0.11
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Industrial - SU3	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	0.20	0.002	0.20
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Industrial - SU3	Process sampling [CS2]. ; (open systems) [CS108]		0.20	0.04	0.24
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Industrial - SU3	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	0.50	0.07	0.57
6	PROC 6 -Calendering operations	Industrial - SU3	Calendering (including Banburys) [CS64]		0.50	0.15	0.65
7	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].	with local exhaust ventilation [CS109]	0.05	0.01	0.06
8	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		0.70	0.23	0.93
9	PROC 7 -Industrial spraying	Industrial - SU3	Spraying/fogging by machine application [CS25].		0.10	0.23	0.33
10	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	0.50	0.07	0.57
11	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Industrial - SU3	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	0.30	0.037	0.34

Generic Exposure Scenario: Industrial Processes relevant for Acetone and Acetone containing products					Risk Characterization		
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)
12	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Industrial - SU3	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	0.40	0.04	0.44
13	PROC 10 - Roller application or brushing	Industrial - SU3	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	0.50	0.15	0.65
14	PROC 10 - Roller application or brushing	Industrial - SU3	Equipment cleaning and maintenance [CS39].		0.50	0.15	0.65
15	PROC 12 - Use of blow agents for foam production	Industrial - SU3	Foaming [CS132].	Production of foam-based objects [CS125].	0.20	0.00	0.20
16	PROC 13 -Treatment of articles by dipping and pouring	Industrial - SU3	Dipping, immersion and pouring [CS4].		0.50	0.074	0.57
17	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Industrial - SU3	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]		0.10	0.00	0.10
18	PROC 15 - Use of laboratory reagents in small scale laboratories	Industrial - SU3	Laboratory activities [CS36].		0.10	0.00	0.10
19	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Industrial - SU3	Hand application - fingerpaints, pastels, adhesives [CS72]		0.50	0.15	0.65

Identified Professional Generic Exposure Scenarios (GESs) of Acetone

GES No.	Subsector	Main SU	Description	PROC	ERC	Acetone
EC No.						200-662-2
CAS No.						67-64-1
1	Use in laboratories	All Professional Uses (SU22)	Use of small quantities within laboratory settings, including material transfers and equipment cleaning	PROC10, PROC15	ERC8a ERCs are to be checked with the ECT tool	x + PROC19
2	Uses in Coatings	All Professional Uses (SU22)	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods), and equipment cleaning, maintenance and associated laboratory activities.	PROC5, PROC8a, PROC10, PROC13	ERC8a, ERC8c, ERC8d, ERC8f ERCs are to be checked with the ECT tool	x + PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC11, PROC15, PROC19
3	Use as binders and release agents	All Professional Uses (SU22)	Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste.	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC 8a, PROC8b, PROC9, PROC10, PROC11	ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f ERCs are to be checked with the ECT tool	x
4	Polymer manufacturing	All Professional Uses (SU22)	Manufacturing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.	PROC8a	ERC8a, ERC8d, ERC8c, ERC8f ERCs are to be checked with the ECT tool	x + PROC1 PROC2 PROC8b PROC9 PROC14
5	Polymer processing	All Professional Uses (SU22)	Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.	PROC8a	ERC8a, ERC8d, ERC8c, ERC8f ERCs are to be checked with the ECT tool	x + PROC1 PROC2 PROC8b PROC9 PROC14
7	Use in Cleaning Agents	All Professional Uses (SU22)	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC19	ERC8a ERCs are to be checked with the ECT tool	x + ERC8d

GES No. EC No. CAS No.	Subsector	Main SU	Description	PROC	ERC	Acetone
						200-662-2
						67-64-1
8	Use in Oil field drilling and production operations	All Professional Uses (SU22)	Covers the use as a component of cleaning products including pouring/unloading from drums or containers	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b	ERC8d ERCs are to be checked with the ECT tool	x
9	Agrochemical uses	All Professional Uses (SU22)	Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.	PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13, PROC19	ERC8a, ERC8d ERCs are to be checked with the ECT tool	x
10	De-icing and anti-icing applications	All Professional Uses (SU22)	Ice prevention and de-icing of vehicles, aircraft and other equipment by spraying	PROC1, PROC2, PROC8b, PROC11, PROC19	ERC8d ERCs are to be checked with the ECT tool	x
11	Explosives manufacture & use	All Professional Uses (SU22)	Covers exposures arising from the manufacture and use of slurry explosives (including materials transfer, mixing and charging) and equipment cleaning	PROC1, PROC3, PROC5, PROC8a, PROC8b	ERC8d ERCs are to be checked with the ECT tool	x

² Polymer Examples: FRP, UV, VE

Please note also: PC's and AC's are only for consumer.
For checking ERC's please use the respective environmental calculation tool (ECT) ECT Acetone or ECT Phenol or ECT Cumene or ECT AMS or ECT ACP

Identified Professional PROCs

PROC No.	Acetone
EC No.	200-662-2
CAS No.	67-64-1
PROC1	x
PROC2	x
PROC3	x
PROC4	x
PROC5	x
PROC6	x
PROC8a	x
PROC8b	x
PROC9	x
PROC10 (2 uses)	x
PROC11	x
PROC13	x
PROC14	x
PROC15	x
PROC19	x
Sum	15

Generic Exposure Scenario:			
Substance specific information		Reference Values	
Substance		DNEL worker - inhalation (long term)	500 ppm
CASnr	67-64-1	DNEL worker - inhalation (short term)	ppm
Substance volatility:	233 hPA	DNEL worker - dermal (long term)	186 mg/kg/day
TRA volatility range	high		
physical property	liquid		
Section 1		Exposure Scenario Title	
Exposure Scenario		Main sector of Use: SU22 = All Professional Uses	
Processes, tasks, activities covered	All Professional Processes relevant for Acetone and Acetone containing products.		
Life Cycle Stage / Sector of Use	SU22 = All Professional Uses		
Applicable Use Descriptors (PROC or PC)	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15, PROC19		
Applicable Use Descriptors (ERC or SpERC)	ERCs and local conditions are to be checked with the Excel tool ECT Acetone		
Default Operational Conditions			
Product characteristics			
Acute Hazard	R phrases: 11-Highly flammable, 36-Irritating to eyes, 66-Repeated exposure may cause skin dryness or cracking, 67-Vapours may cause drowsiness and dizziness		
General measures	<p>Locate bulk storage outdoors [E2]</p> <p>Use suitable eye protection [PPE26]</p> <p>If repeated and/or prolonged skin exposure to the substance is likely, then wear suitable gloves tested to EN374 and provide employee skin care programmes [PPE20]</p> <p>Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]</p>		
concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].		
physical form of product	Liquid, vapour pressure > 10 kPa [OC5].		
frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]		
other Operational Conditions of use	Assumes a good basic standard of occupational hygiene is implemented [G1]. ;		

Section 2	Operational conditions and risk management measures
Section 2.1	Control of environmental exposure
Product characteristics	substance is a unique structure, ketone, readily biodegradable
Amounts used	Annual site tonnage (tonnes/year): please use the Excel-Tool 'ECT Acetone' to calculate your maximum tonnage/year
Frequency and duration of use	Emission Days (days/year): 360d/y
Other Operational Conditions of use affecting environmental exposure	Indoor/Outdoor use
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Common practices vary across sites thus conservative process release estimates used. Typical technical measures are closed systems or scrubbers or charcoal adsorbers. Typical onsite offgas treatment technology provides removal efficiency of 90 %
Organisation measures to prevent/limit release from site	Common practices vary across sites thus conservative process release estimates used. Please use the Excel-Tool 'ECT Acetone' to check your local conditions.
Conditions and measures related to municipal sewage treatment plant	Please use the Excel-Tool 'ECT Acetone' to check your local conditions.
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable regulations
Conditions and measures related to external recovery of waste	External treatment and disposal of waste should comply with applicable regulations
Other environmental control measures additional to above	none
Section 2.2	Control of worker exposure
	see chapter RMMs
Section 3	Exposure Estimation
3.1. Health	GES Worker Chemical Safety Assessment (CSA) Template
	http://cefic.org/templates/shwPublications.asp?HID=750
3.2. Environment	ECT Acetone
	http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	<i>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.</i>
4.2. Environment	<i>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.</i>

Generic Exposure Scenario:		Professional Processes relevant for Acetone and Acetone containing products			Risk Management Measures (RMMs)
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH
1	PROC 1 - Use in closed process, no likelihood of exposure	Professional - SU22	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Professional - SU22	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Professional - SU22	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	Sample via a closed loop or other system to avoid exposure [E8].; Handle substance within a closed system [E47].
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Professional - SU22	Process sampling [CS2]. ; (open systems) [CS108]		
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2]. ; with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].
6	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	Ensure operation is undertaken outdoors [E69].
7	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	Avoid carrying out activities involving exposure for more than 4 hours [28].
8	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]; with local exhaust ventilation [CS109]		Ensure operation is undertaken outdoors [E69].
9	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		Ensure operation is undertaken outdoors [E69].
10	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		Avoid carrying out activities involving exposure for more than 4 hours [28].
11	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].

Generic Exposure Scenario:		Professional Processes relevant for Acetone and Acetone containing products			Risk Management Measures (RMMs)
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH
12	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	Ensure operation is undertaken outdoors [E69].
13	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	Avoid carrying out activities involving exposure for more than 4 hours [28].
14	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	
15	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Professional - SU22	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	
16	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39]. ; with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].
17	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	Limit the substance content in the product to 25% [OC18].
18	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	Avoid carrying out activities involving exposure for more than 4 hours [28].
19	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].	with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].
20	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		Limit the substance content in the product to 25% [OC18].Ensure operation is undertaken outdoors [E69]. Avoid carrying out activities involving exposure for more than 4 hours [28].
21	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		Avoid carrying out activities involving exposure for more than 1 hour [27].
22	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]

Generic Exposure Scenario:		Professional Processes relevant for Acetone and Acetone containing products			Risk Management Measures (RMMs)
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	advised under REACH
23	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Dipping, immersion and pouring [CS4].		
24	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]	Ensure material transfers are under containment or extract ventilation [E66].
25	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]		Avoid carrying out activities involving exposure for more than 4 hours [28].
26	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].		
27	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		Limit the substance content in the product to 25% [OC18].Wear suitable gloves tested to EN374 [PPE15].
28	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		Avoid carrying out activities involving exposure for more than 1 hour [27].

Generic Exposure Scenario: Professional Processes relevant for Acetone and Acetone containing products					Inhalation Exposure								
No	Use Descriptor (PROCS)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
1	PROC 1 - Use in closed process, no likelihood of exposure	Professional - SU22	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	0.01								0.01
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Professional - SU22	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	50.00								50
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Professional - SU22	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	100.00								100
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Professional - SU22	Process sampling [CS2]. ; (open systems) [CS108]		250.00								250
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2]. ; with local exhaust ventilation [CS109]	500.00	80.00							100
6	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	500.00		30.00						350
7	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	500.00				1-4 hours				300
8	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]; with local exhaust ventilation [CS109]		600.00	80.00							420
9	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		600.00		30.00						420
10	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		600.00				1-4 hours				360
11	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	500.00	80.00							100
12	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	500.00		30.00						350
13	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	500.00				1-4 hours				300

Generic Exposure Scenario: Professional Processes relevant for Acetone and Acetone containing products				Inhalation Exposure									
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
14	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	250.00								250
15	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Professional - SU22	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	250.00								250
16	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39]. ; with local exhaust ventilation [CS109]	500.00	80.000							100
17	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	500.00			5-25%					300
18	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	500.00				1-4 hours				300
19	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].	with local exhaust ventilation [CS109]	1000.00	80.00							200
20	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		1000.00		30.00	5-25%	1-4 hours				252
21	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		1000.00				15 min-1 hour				200
22	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		1000.00					half mask			100
23	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Dipping, immersion and pouring [CS4].		250.00								250
24	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]	500.00	80.00							100
25	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100]		500.00				1-4 hours				300
26	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].		50.00								50

Generic Exposure Scenario: Professional Processes relevant for Acetone and Acetone containing products					Inhalation Exposure								
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Exposure - (ppm) - no modifiers	TRA LEV : efficiency (%)	Dilution ventilation effectiveness (%)	TRA concentration factor	TRA duration factor	TRA RPE factor	Extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (inhalation)	Predicted Exposure - (ppm) - modified
27	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		500.00			5-25%					300
28	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		500.00				15 min-1 hour				100

Generic Exposure Scenario: Professional Processes relevant for Acetone and Acetone containing products					Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
1	PROC 1 - Use in closed process, no likelihood of exposure	Professional - SU22	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	0.34						0.34
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Professional - SU22	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	1.37						1.37
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Professional - SU22	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	0.34						0.34
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure	Professional - SU22	Process sampling [CS2]. ; (open systems) [CS108]		6.86						6.86
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2]. ; with local exhaust ventilation [CS109]	13.71	0.01					0.07
6	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	13.71						13.71
7	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	13.71						13.71
8	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]; with local exhaust ventilation [CS109]		27.43	0.05					27.43
9	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		27.43						27.43
10	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		27.43						27.43
11	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation	13.71	0.01					0.14
12	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	13.71						13.71

Generic Exposure Scenario: Professional Processes relevant for Acetone and Acetone containing products					Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
13	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	13.71						13.71
14	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	6.86						6.86
15	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Professional - SU22	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	6.86						6.86
16	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39]. ; with local exhaust ventilation [CS109]	27.43	0.050					1.37
17	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	27.43		5-25%				16.46
18	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	27.43						27.43
19	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].	with local exhaust ventilation [CS109]	107.14	0.02					2.14
20	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		107.14		5-25%				64.28
21	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		107.14						107.14
22	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		107.14						107.14
23	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Dipping, immersion and pouring [CS4].		13.71						13.71
24	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]	3.43	0.10					0.34

Generic Exposure Scenario: Professional Processes relevant for Acetone and Acetone containing products					Dermal Exposure						
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	TRA Predicted Dermal exposure (mg/kg/d) - no modifiers	TRA Dermal exposure LEV reduction factor	TRA concentration factor	PPE factor	extra exposure modifier: [optional]	Free text - comment to clarify additional modifier (dermal)	Predicted Dermal Exposure (mg/kg/d) - modified
25	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]		3.43						3.43
26	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].		0.34						0.34
27	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		141.43		5-25%	gloves			16.97
28	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		141.43						141.43

Generic Exposure Scenario: Professional Processes relevant for Acetone and Acetone containing products					Risk Characterization		
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMS	RCR (inhalation)	RCR (dermal)	RCR (all routes)
1	PROC 1 - Use in closed process, no likelihood of exposure	Professional - SU22	General exposures (closed systems) [CS15].	(closed systems) [CS107].; Process sampling [CS2]. ;	0.00002	0.002	0.002
2	PROC 2 - Use in closed, continuous process with occasional controlled exposure	Professional - SU22	General exposures (closed systems) [CS15].	Continuous process [CS54]. ; Process sampling [CS2].	0.10	0.01	0.11
3	PROC 3 - Use in closed batch process (synthesis or formulation)	Professional - SU22	General exposures (closed systems) [CS15].	Batch process [CS55]. Process sampling [CS2].	0.20	0.002	0.20
4	PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Professional - SU22	Process sampling [CS2]. ; (open systems) [CS108]		0.50	0.04	0.54
5	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. ; Process sampling [CS2]. ; with local exhaust ventilation [CS109]	0.20	0.00	0.20
6	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	0.70	0.07	0.77
7	PROC 5 -Mixing or blending in batch processes (multistage and/or significant contact)	Professional - SU22	Mixing operations (open systems) [CS30].	Batch process [CS55]. Process sampling [CS2].	0.60	0.07	0.67
8	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]; with local exhaust ventilation [CS109]		0.84	0.15	0.99
9	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		0.84	0.15	0.99
10	PROC 6 -Calendering operations	Professional - SU22	Calendering (including Banburys) [CS64]		0.72	0.15	0.87
11	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22]. ; with local exhaust ventilation [CS109]	0.20	0.001	0.20

Generic Exposure Scenario: Professional Processes relevant for Acetone and Acetone containing products				Risk Characterization			
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)
12	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	0.70	0.07	0.77
13	PROC 8a -Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Non-dedicated facility [CS82]; Transfer from/pouring from containers [CS22].	0.60	0.07	0.67
14	PROC 8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities	Professional - SU22	Bulk transfers [CS14].	Dedicated facility [CS81]; Transfer from/pouring from containers [CS22].	0.50	0.04	0.54
15	PROC 9 -Transfer of chemicals into small containers (dedicated filling line)	Professional - SU22	Small package filling [CS7].	Dedicated facility [CS81]; Pouring from small containers [CS9].	0.50	0.04	0.54
16	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39]. ; with local exhaust ventilation [CS109]	0.20	0.007	0.21
17	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	0.60	0.09	0.69
18	PROC 10 - Roller application or brushing	Professional - SU22	Rolling, Brushing [CS51].	Or: Equipment cleaning and maintenance [CS39].	0.60	0.15	0.75
19	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].	with local exhaust ventilation [CS109]	0.40	0.01	0.41
20	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		0.50	0.35	0.85
21	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		0.40	0.58	0.98
22	PROC 11 - Non industrial spraying	Professional - SU22	Spraying/fogging by manual application [CS24].		0.20	0.58	0.78

Generic Exposure Scenario:		Professional Processes relevant for Acetone and Acetone containing products			Risk Characterization		
No	Use Descriptor (PROCs)	SU 3 / SU 22	Contributing Scenario	Operational Conditions & typical RMMs	RCR (inhalation)	RCR (dermal)	RCR (all routes)
23	PROC 13 -Treatment of articles by dipping and pouring	Professional - SU22	Dipping, immersion and pouring [CS4].		0.50	0.07	0.57
24	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]	with local exhaust ventilation [CS109]	0.20	0.002	0.20
25	PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation	Professional - SU22	Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100]		0.60	0.02	0.62
26	PROC 15 - Use of laboratory reagents in small scale laboratories	Professional - SU22	Laboratory activities [CS36].		0.10	0.002	0.10
27	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		0.60	0.09	0.69
28	PROC 19 - Hand-mixing with intimate contact (only PPE available)	Professional - SU22	Hand application - fingerpaints, pastels, adhesives [CS72]		0.20	0.76	0.96

Identified Consumer Generic Exposure Scenarios (GESs) of Acetone

GES No.	Subsector	Main SU	Description	PC
EC No.				
CAS No.				
1	Uses in Coatings	All Consumer Uses (SU21)	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.	PC1, PC4, PC5, PC9, PC10, PC15, PC24, PC31
2	Use in Cleaning Agents	All Consumer Uses (SU21)	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.	PC3, PC4, PC9, PC24, PC32, PC 35, PC38
3	De-icing and anti-icing applications	All Consumer Uses (SU21)	De-icing of vehicles and similar equipment by spraying	PC4

Identified Consumer - PCs & Market Sector - PCs

PC	Acetone			PC type
	Coatings	Cleanings	De-icing	
PC1	x			Consumer
PC3		x		Consumer
PC4	x	x	x	Market Sector
PC9	x	x		Consumer
PC15	x			Market Sector
PC24	x	x		Consumer
PC31	x			Consumer
PC32		x		Market Sector
PC35		x		Consumer
PC38		x		Market Sector

Section 1		Exposure Scenario Title
Title		GES USES
Sector of Use (SU code)		21
Use Descriptor (PC codes)		PC LISTS
Processes, tasks, activities covered		DESCRIPTIONS
Environmental Release Category		
Specific Environmental Release Category		
Section 2		Operational conditions and risk management measures
<i>Field for additional statements to explain scenario if required - pending better understanding from ECHA</i>		
Section 2.1		Control of consumer exposure
Product characteristics		
Physical form of product		liquid
Vapour pressure		24000
Concentration of substance in product		Unless otherwise stated, cover concentrations up to 100% [ConsOC1]
Amounts used		Unless otherwise stated, covers use amounts up to 37500g [ConsOC2]; covers skin contact area up to 6600cm ² [ConsOC5]
Frequency and duration of use/exposure		Unless otherwise stated, covers use frequency up to 4 times per day [ConsOC4]; covers exposure up to 8 hours per event [ConsOC14]
Other Operational Conditions affecting exposure		Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m ³ room [ConsOC11]; assumes use with typical ventilation [ConsOC8].
Section 2.1.1		Product categories
PC1:Adhesives, sealants--Glues, hobby use	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm ² [ConsOC5]; for each use event, covers use amounts up to 9g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants--Glues DIY-use (carpet glue, tile glue, wood parquet glue)	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 1 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 110.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 6.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC1:Adhesives, sealants--Glue from spray	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm ² [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

Section 2.1.1		Product categories
PC1:Adhesives, sealants--Sealants	OC	Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm ² [ConsOC5]; for each use event, covers use amounts up to 75g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC3:Air care products--Air care, instant action (aerosol sprays)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 4 times/day of use[ConsOC4]; for each use event, covers use amounts up to 0.1g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 0.25hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC3:Air care products--Air care, continuous action (solid and liquid)	OC	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.70 cm ² [ConsOC5]; for each use event, covers use amounts up to 0.48g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 8.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and de-icing products--Washing car window	OC	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.02hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and de-icing products--Pouring into radiator	OC	Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 2000g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC4_n:Anti-freeze and de-icing products--Lock de-icer	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 214.40 cm ² [ConsOC5]; for each use event, covers use amounts up to 4g [ConsOC2]; Covers use in a one car garage (34m ³) under typical ventilation [ConsOC10]; covers use in room size of 34m ³ [ConsOC11]; for each use event, covers exposure up to 0.25hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinners--Waterborne latex wall paint	OC	Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm ² [ConsOC5]; for each use event, covers use amounts up to 2760g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinners--Solvent rich, high solid, water borne paint	OC	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm ² [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

Section 2.1.1		Product categories
PC9a:Coatings and paints, fillers putties, thinners-- Aerosol spray can	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9a:Coatings and paints, fillers putties, thinners-- Removers (paint-, glue-, wall paper-, sealant- remover)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9b:Fillers, putties, plasters, modeling clay-- Fillers and putty	OC	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm2 [ConsOC5]; for each use event, covers use amounts up to 85g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9b:Fillers, putties, plasters, modeling clay-- Plasters and floor equalizers	OC	Unless otherwise stated, covers concentrations up to 2% [ConsOC1]; covers use up to 12 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 13800g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC9b:Fillers, putties, plasters, modeling clay-- Modelling clay	OC	Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1g [ConsOC13];
	RMM	No specific RMMs identified beyond those OCs stated
PC9c:Finger paints --Finger paints	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 254.40 cm2 [ConsOC5]; for each use event, assumes swallowed amount of 1.35g [ConsOC13];
	RMM	Avoid using at a product concentration greater than 5% [ConsRMM1];
PC15_n: Non-metal surface treatment products-- Solvent rich, high solid, water borne paint	OC	Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 744g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.20hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC15_n: Non-metal surface treatment products-- Aerosol spray can	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC15_n: Non-metal surface treatment products-- Removers (paint-, glue-, wall paper-, sealant- remover)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 491g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

Section 2.1.1		Product categories
PC24: Lubricants, greases, and release products--Liquids	OC	Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 4 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 2200g [ConsOC2]; Covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	
PC24: Lubricants, greases, and release products--Pastes	OC	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 10 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 468.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 34g [ConsOC2]; covers use in room size of m3[ConsOC11];
	RMM	No specific RMMs identified beyond those OCs stated
PC24: Lubricants, greases, and release products--Sprays	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.75 cm2 [ConsOC5]; for each use event, covers use amounts up to 73g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC31:Polishes and wax blends--Polishes, wax / cream (floor, furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 29 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 142g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 1.23hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC31:Polishes and wax blends--Polishes, spray (furniture, shoes)	OC	Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 8 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 430.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC35:Washing and cleaning products (including solvent based products)--Laundry and dish washing products	OC	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 15g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.50hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC35:Washing and cleaning products (including solvent based products)--Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	OC	Unless otherwise stated, covers concentrations up to 5% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm2 [ConsOC5]; for each use event, covers use amounts up to 27g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
PC35:Washing and cleaning products (including solvent based products)--Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	OC	Unless otherwise stated, covers concentrations up to 15% [ConsOC1]; covers use up to 128 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 428.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 35g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 0.17hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated

Section 2.1.1		Product categories
PC38_n: Welding and soldering products, flux products--NOTE, n_assessment not in TRA	OC	Unless otherwise stated, covers concentrations up to 20% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 12g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3[ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14];
	RMM	No specific RMMs identified beyond those OCs stated
Section 3		Exposure Estimation ('Flexible' heading)
<i>ECHA Note in draft template: Exposure estimation and risk characterisation ratios (for all routes of exposure for consumers and all compartments for environment) resulting from the conditions described under Sections 2.1 and 2.2.), and the substance properties; make reference to the exposure assessment tool applied. Note: Detail could be confusing for customers. Also may be an extensive list. Proposal to include a weblink from where these data can be retrieved (a component of GES development).</i>		
3.1. Health		
Health sub-headings (design as phrases)		Standard phrases expected. Ability to Include a web link.
3.2. Environment		
Environment sub-headings (design as phrases)		Standard phrases expected. Ability to Include a web link.
Section 4		Guidance to check compliance with the Exposure Scenario ('Flexible' heading)
<i>Guidance how the DU can evaluate whether he operates within the conditions set in the exposure scenario - scaling tools. Standard phrases</i>		
4.1. Health		
Health sub-headings (design as phrases)		Utilize TRA, TRA+ and/or CONSEXPO exposure model
4.2. Environment		
Environment sub-headings (design as phrases)		Standard phrases

Phenol & Derivatives – REACH Consortium

Qualitative Environmental Exposure Assessment

ACETONE

CAS No: 67-64-1

EINECS No: 200-662-2

August, 2010

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1. Environmental Exposure

1.1 General discussion

Acetone is released from a number of both human-made as well as natural sources. Man-made releases are quite small compared to natural sources of acetone in the environment. Releases to the environment by producers, processors and users of acetone have been estimated to represent only about 1-2 percent of total annual environmental loading. Approximately 97 percent of annual environmental loading come from natural sources (vegetative releases, forest fires and other natural sources) and the photo-oxidation of alkanes and alkenes (OECD 1999, VCCEP 2003).

The purpose of this chapter is to reflect qualitatively the exposure situation in the EU that results from industrial sources of acetone production and processing. As far as exposure of the environment is concerned, the diffuse emissions of acetone from natural sources by far exceed the industrial emissions.

In the appendix predefined environmental exposure scenarios are attached to this document. These enable downstream users of acetone to check and reflect their specific exposure situation in regard to surface-water and soil release and to determine their conditions for a safe use as well as their acceptable use volumes. Reference is given to an according tool, that is enclosed in the registration dossier as an attached document (ECT_Acetone_19Jul2010.xls) and may be downloaded from the P&D REACH Consortium-website or the web-site of the consortium members.

1.2 Production

Worldwide production capacity of acetone was 3.8 million tonnes in 1995 with the actual volume produced being somewhat less at 3.7 million tonnes. Production capacity in the United States constituted about 33% (1.3 million tonnes) of the global capacity, while the capacity in Western Europe and Asia (including Japan) was about 31% (1.2 million tonnes) and 19% (0.7 Mio tonnes), respectively. For 2008, the CMAI Capacity Database reports a total supply of approx. 5 Mio tonnes worldwide and 1.5 Mio in Western Europe (CMAI, 2010).

Acetone can be manufactured by several routes: (a) as a co-product of phenol via cumene peroxidation, (b) via dehydrogenation of isopropyl alcohol, (c) as a byproduct of hydroquinone production, and (d) as a byproduct of propylene oxide production. The predominant route to production of acetone is the cumene peroxidation process. In this process, benzene is alkylated to cumene which is oxidized to cumene hydroperoxide, which in turn is cleaved to phenol and acetone. Distillation columns are employed to attain desired purity, which is typically greater than 99% for the final product. The processes and equipment for manufacture, transfer and storage are all continuous and enclosed. Equipment and tanks are customarily vented to water scrubbers or through conservation vents to prevent atmospheric loss via evaporation. These practices keep environmental acetone losses during production to a minimum (VCCEP 2003).

The release of acetone by chemical manufacturers' and end users accounts for a very small percentage (1%) of the estimated 40 million tonnes that are annually released to the environment (OECD 1999).

1.3 Uses

Acetone is one of the most widely used industrial solvents. Acetone is used in surface coatings, cleaning fluids, pharmaceutical and cosmetic applications, adhesives and numerous other consumer and commercial products. It also is sold in small containers (e.g., one liter) via various sales channels. Acetone is used in the extraction of fats, oils, waxes and resins from natural products, as a denaturant for ethyl alcohol, and as acetylene absorbent. Acetone is used in the manufacture of cellulose acetate fibers. Acetone also is widely used as a chemical intermediate. Numerous chemicals are produced starting with the self-condensation of acetone to diacetone alcohol, including methyl isobutyl ketone, methyl isobutyl carbinol, hexylene glycol, and isophorone. For 2008, the CMAI Capacity Database (CMAI, 2010) allocates the total supply of acetone to the main industrial sectors of use as follows:

Demand	World	Western Europe
	[approx. percent of supply]	
Bisphenol A	22	18
MMA	23	25
Other chemical derivatives	13	11
Solvents	41	33

1.4 Natural and further releases into the environment

Man-made releases are small compared to natural sources of acetone in the environment. Releases to the environment by producers, processors and users of acetone have been estimated to represent only about 1-2 percent of total annual environmental loading. Approximately 97 percent of annual environmental loading comes from natural sources (vegetative releases, forest fires and other natural sources) and the photo-oxidation of alkanes and alkenes. The remainder comes from anthropogenic biomass burning (VCCEP 2003). According to OECD (1999) the release of acetone by chemical manufacturers' and end users accounts for a very small percentage (1%) of the estimated 40 million tonnes that are annually released to the environment.

Atmosphere

Vegetative releases

Acetone was found to be a product of metabolism in microorganisms, plants and animals. The compound is formed during fermentation by *Clostridiaceae*. In animals, acetone is formed together with acetyl acetic acid and β -hydroxybutyric acid, predominantly during fatty acid metabolism. The compound was measured in human fluids in concentrations of 0.31 – 3.03 mg/L in urine, 0.93 mg/L in blood, 2.9 mg/L in serum, and 0.41 – 4.35 mg/L in plasma (BUA 1996).

Acetone can be found as an ingredient in a variety of consumer products ranging from cosmetics to processed and unprocessed foods. The compound is present in beverages, baked goods, deserts, and preserves at concentrations ranging from 5 to 8 mg/L. It can also be detected in measurable amounts in onions, grapes, cauliflower, tomatoes, milk, cheese, beans, peas, and other natural foods. Milk from dairy cattle may contain very high levels of acetone, ranging as high as 225 mg/L for the milk from hyperketo-nemic cows. Acetone has also been identified, but not quantified, in air samples from numerous plants and microorganisms. In

addition to its elimination in the expired air of all mammals, acetone is excreted as a metabolic end-product by some bacteria (*Clostridium butylicium*), molds, fungi (*Paecilomyces variotii*), and algae (*Cryptomonas ovate palustris*) (OECD 1999).

Vegetative releases, forest fires, and other natural events account for nearly half (47%) of the estimated annual emissions of acetone. The global release by vegetation was estimated to 4 – 18 Mio. t/a (average 9 Mio t/a) (OECD 1999). No release amounts for microorganisms or animals could be identified. Releases into the environment within the EU were not located in the literature.

A rough estimation of European releases can be performed taken into account the continental and the global land area. The global land area is 148,9 Mio. km², while the area of the European Union is 4.3 Mio. km² (Wikipedia 2010), i.e. 2.9% of global. Assuming that the acetone emission by vegetation is equally distributed over the earth, 261,000 t acetone/a (2.9% · 9 Mio. t/a) would be released from vegetative sources in Europe.

Biomass burning

Acetone is often detected as an end product of thermal combustion and biological decomposition. Emissions from poultry manure (530 g/kg), backyard waste incinerators (4.0 g/kg), pine wood combustion (2.8 g/kg), neoprene combustion (990 mg/kg), and wood burning stoves (145 mg/kg) have all been measured and reported (OECD 1999).

The global release by biomass burning was estimated to 8 – 12 Mio. t/a (average 10 Mio t/a) (OECD 1999). Releases into the environment within the EU were not located in the literature.

A rough estimation of European releases can be performed taken into account the continental and the global land area (see above). Assuming that the acetone emission by biomass burning is equally distributed over the earth, 290,000 t acetone/a (2.9% · 10 Mio. t/a) would be released in Europe from biomass burning.

Photooxidation of alkanes and alkenes

Acetone is formed by photo-oxidation of alkanes, e.g. from vehicle exhaust (BUA 1996).

About 50% of the total emissions result from the tropospheric photooxidation of propane and other alkanes and alkenes. The following global sources are reported: propane oxidation 15 – 20 Mio. t/a (average 17 Mio t/a), isobutane & isopropane oxidation 1 – 3 Mio. t/a (average 2 Mio t/a), isobutene & isopropene oxidation 1 – 2 Mio. t/a (average 1 Mio t/a), and myrcene oxidation 0.2 – 0.3 Mio. t/a (average 0.2 Mio t/a). The average global release due to these sources is 20.2 Mio t/a (OECD 1999).

The release estimation in OECD (1999) was based on data from the 1990ies. Recent investigations demonstrate that the emissions from vehicle exhaust decreased significantly in the last decade. According to LUBW (2010) benzene concentrations measured at traffic monitoring stations dropped from ca. 10.7 µg/m³ in 1996 to 2.3 µg/m³ in 2008. Similar results were published in UBA (2010): benzene concentrations measured in urban traffic areas decreased from 7.9 µg/m³ in 1997 to 2.1 µg/m³ in 2007, while urban background concentrations decreased from 2.8 µg/m³ to 1.0 µg/m³ in the same period. In the same period industrial hydrocarbon emissions decreased drastically. Therefore, acetone emissions estimated in OECD (1999) could overestimate the current situation. Furthermore, only a part of the global release is emitted within the European Union. For the exposure estimation it is assumed that approximately 10% of the reported amount (= 2.02 Mio. t/a) is released within the EU.

2. Environmental distribution and behaviour

2.1 Distribution

Deduced as a weight of evidence from the physicochemical data (miscibility with water in all proportions, $\log P_{ow} = -0.24$) acetone should not adsorb onto soils. Data for soil sorption are quoted in a reliable scientific study. Soil sorption K_d was 1.5 L/kg, at 20 °C. The soil sorption coefficient indicates that acetone is mobile in soil and may be transported by soil water (Roy W, Griffin R 1990).

Several reliable experimental studies and further reported values for the Henry's Law constant are available. According to reliable experimental studies (bubble column technique) the Henry's Law constant was determined to 2.929 Pa m³mol⁻¹ (Zhou X, Mopper K 1990) and 3.070 Pa m³mol⁻¹ at 25 °C (Betterton E 1991), indicating a moderate volatility from water. The Henry's law constant for sea water was determined to 3.311 Pa m³mol⁻¹ at 25 °C. A slight salting-out effect is to be observed by comparison of the Henry's Law constants in fresh and sea water (Zhou X, Mopper K 1990). In both media the Henry's law constants rise with temperature.

Distribution modelling using a simple one-dimensional model of the global circulation assuming a single pulse emission of acetone predicted significantly high spatial ranges of 46.5% of the earth perimeter, which are caused by their intermediate gas-phase stability and high volatility. The persistence's are predicted below 20 days, mainly due to the degradation in water and soil (Scheringer M 1997).

A generalised (STP) Fate Model based on a steady-state mass balance model designed for primary and biological reactors of a typical diffused air activated sludge system considering the processes advection, sorption, volatilisation, air stripping, and biotransformation was used to predict the fate of acetone in waste water plants. The model calculations implicate that acetone is predominantly in the aqueous phase and without biotransformation it would be transferred to the effluent. Volatilisation is not relevant. In model runs including biodegradation removal is partly due to biotransformation and to transport to the effluent (Byrns G 2001).

There are several studies concerning other distribution data dealing with the partition of acetone between air and water and the behaviour in soils. Air/water partition coefficients range from 357 – 341:1 (Cowan J 1990), these data are in accordance with the moderate volatility of acetone deduced from the experimentally derived Henry's Law constants.

Other studies are dealing with the diffusion of acetone in soil air. Soil diffusion coefficient at 0 °C was calculated for 8.8 x 10⁻³cm²/sec (Roy W, Griffin R 1990). The diffusion coefficient for acetone was found to be considerably lower than in air. Liquid acetone is able to expand clay soils rapidly within 2-3 days to an extent of 3.5 – 8 % (Green W et al. 1983).

The calculated theoretical distribution in the environment (distribution model according to Mackay, level 1) clearly demonstrates that the atmosphere and hydrosphere are the target compartments for acetone in the environment (OECD 1999):

Air:	71.00 %
Water	28.58 %
Soil	0.00 %

Sediment 0.01 %

2.2 Degradation

Acetone introduced in water has been shown to be **readily biodegradable** in a considerable number of reliable investigations under a wide variety of conditions (including anaerobic conditions). This holds also true also for biodegradability in sediment as well as soil. Taking into account the ubiquitous occurrence of acetone in environmental compartments, adaptation is to be assumed in the case of microbial inocula.

There are two reliable experimental studies for photo degradation in air. The overall loss rate of acetone including photo dissociation and loss by reaction with OH radicals and the corresponding lifetimes were calculated for January, Equinox and July at 40 degree northern latitude. Lifetimes were reported to be 18.6 - 114.4 days. This results correspond to the findings of the second study where the photo dissociation lifetime for 40° solar angle is reported to be $1/k_{\text{dissoc}} = 14.8$ days.

2.3 Bioaccumulation

No reliable experimental data on bioaccumulation are available. Based on the calculated BCF=3 (input parameter: measured log Kow value) no potential for bioaccumulation is to be expected (Fh-ITEM 2009).

3. Background levels

Recent monitoring data are not available. Most of the available studies refer to atmospheric concentrations.

Acetone concentrations in remote areas (Pt Barrow, Alaska, USA, 1967) were found to be $0.72 - 6.96 \mu\text{g}/\text{m}^3$ (Verschueren 1983, Cavanagh, LA et al. 1969). At rural sites in the USA, acetone concentrations were determined for $0.72 - 2.16 \mu\text{g}/\text{m}^3$ in 1971 (Robinson E et al. 1973). Mean Concentrations at rural sites (Arizona, USA, 1982) were found to be $6.2 \mu\text{g}/\text{m}^3$ (SD: ± 0.8). Somewhat higher mean concentrations of $28.8 \mu\text{g}/\text{m}^3$ (SD: ± 4) were found at urban sites (Tucson, Arizona, USA) (Snider JR, Dawson GA 1985). In at urban sites in Sweden (Stockholm, 1982/83) mean concentrations of acetone in air were in the same order of magnitude $9.7 - 46.6 \mu\text{g}/\text{m}^3$. Possible sources other than vehicle exhaust as solvent use, photochemical oxidation or biogenic sources were discussed. There was no statistically significant correlation with traffic exhaust components as CO and benzene (Jonsson A 1985). Mean ambient air concentrations in Northern Italy in 1983 - 1984 were found to be $39 \mu\text{g}/\text{m}^3$ (indoor, range: $3 - 157 \mu\text{g}/\text{m}^3$) and $6 \mu\text{g}/\text{m}^3$ (outdoor, range: $<2 - 16 \mu\text{g}/\text{m}^3$) (Verschueren 1983).

For fresh water no background concentrations are available.

In the USA some studies were performed at contaminated sites. In a contaminated well $3 \mu\text{g}/\text{L}$ acetone were determined (Rao PSC 1985). $0.56 - 600 \text{ mg}/\text{L}$ acetone was measured in landfill leachate (Verschueren 1983). $0.2 - 0.7 \mu\text{g}/\text{L}$ acetone was found in six drinking water wells in the vicinity of a solid waste landfill. In the landfill leachate $43.700 \mu\text{g}/\text{L}$ acetone was detected (DeWalle FB, Chian ESK 1981).

In contrast background concentrations in sea water are available. Acetone concentrations were determined for $0.014 - 0.052 \text{ mg}/\text{L}$ (Straits of Florida) and $0.018 - 0.053 \text{ mg}/\text{L}$ (Eastern Mediterranean) acetone (Corwin J 1969).

In sludge from the wwtp Bottrop of the Emscher Genossenschaft (receiving the wastewater of INEOS phenol) a concentration of 1.5 mg/l acetone was measured in 2010 (Emscher Genossenschaft, 2010).

2.4 – 44 mg/kg dw acetone was determined in soils (Colorado, USA, 1978) by a purge and trap method. Acetone occurred in all soils tested. The addition of lime increased emission of acetone in the three acid soils tested (Pavlica D et al. 1978).

According to handbook data acetone is a normal micro component in blood and urine, a minor constituent in pyroligneous acid and an oxidation product of alcohols and humic substances (Verschueren 1983). In cigarette smoke 2640 mg/m³ and gasoline exhaust (partly propionaldehyde) 5.52 – 33.6 mg/m³ were determined (Verschueren 1983).

Based on the releases referred in Ch. 1.4, the following regional environmental concentrations were estimated by EUSES 2.1.1:

$$PEC_{\text{regional aquatic}} = 2.29 \mu\text{g/l}$$

$$PEC_{\text{regional marine}} = 0.759 \mu\text{g/l}$$

$$PEC_{\text{regional air}} = 12.8 \mu\text{g/m}^3$$

$$PEC_{\text{regional agr. soil}} = 1.9 \mu\text{g/kg wwt}$$

$$PEC_{\text{regional natural soil}} = 3.69 \mu\text{g/kg wwt}$$

4. Ecotoxicological information

4.1 Aquatic environment

Short-term toxicity data for fish (freshwater), invertebrates (freshwater and marine water), and algae (freshwater and marine water) as well as long-term toxicity data for freshwater invertebrates and algae are available. Algae proved to be the most sensitive fresh water organism (*Mycrocystis aeruginosa*: 8 d TT (NOEC)=530 mg/L nominal). Based on the available reliable results (results of acute toxicity testing from three trophic levels and long-term toxicity testing from two trophic levels) an assessment factor of 50 seems to be justified according to TGD. Based on this, the **PNEC aqua (freshwater)=10.6 mg/L** is obtained.

4.2 Terrestrial environment

There are no data available from guideline studies using sediment as test medium. In the absence of ecotoxicological data for sediment-dwelling organisms, the PNEC_{sed} may be provisionally calculated using the equilibrium partitioning method according to 'Guidance on information requirements and chemical safety assessment Chapter R.10 –Dose [concentration]-response regarding environment' (ECHA 2008). With the default parameters of the TGD concerning the fractions and densities in sediment as well as the substance parameters, the calculation of **PNEC soil resulted in a value of 23.9 mg/kg wet soil**.

5. Classification for the environment

Due to its **ready biodegradability** in the environment as well as its insignificant potential for bioaccumulation, acetone is not classified as dangerous/hazardous for the environment according to Directive 67/548/EEC and according to the Regulation (EC) 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP Regulation):

According to Directive 67/548/EEC Annex 1 (environment): not classified

According to CLP - (EC) 1272/2008 (environment): not classified

L(E)C50 >100 mg/L; readily biodegradable, no bioaccumulation

Hazardous to the atmospheric environment:

(Hazardous to the ozone layer: This includes substances which are listed in Annex I to Regulation (EC) No 2037/2000 of the European Parliament and of the Council on substances that deplete the ozone layer (1) and its subsequent amendments):

Acetone is not listed in Annex I of (EC) No 2037/2000.

M-Factor: No

Labelling No Signal word and Pictogram for environmental hazards

6. References

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Environmental exposure – Exposure Calculation Tool (ECT)

The following pages are screen shots of the Exposure Calculation Tool “ECT_Acetone”.

This Excel tool enables the performance of scaling calculation for specific local environmental conditions. It can be downloaded from the web page of the Phenol & Derivatives REACH-consortium:

<http://www.reachcentrum.eu/EN/consortium-management/consortia-under-reach/phenol-derivatives-reach-consortium.aspx>

The tool provides three options:

1. Pre-defined safe generic scenarios
2. Risk calculation for specific local conditions
3. Calculation of maximum tonnage volumes to be used safely under specific local conditions

Some quick information about the ECT Tool

The ECT Tool should help downstream users defining acceptable scenarios for environmental release of their chemicals.

Sheets are available for environmental concentration in soil and surface water (PEC_{soil} and PEC_{surface water}).

The sheets calculate maximum acceptable use volumes dependent on the local situation (e.g. ERC, dilution).

The tool is based on EUSES but with some simplifications to improve the user friendliness and to concentrate on the key parameters.

As in EUSES PEC_{surface water} is calculated as the sum of PEC_{regional} and the local concentration (C_{local}).

All default parameters are taken from the respective EUSES scenarios.

A major simplification is that PEC_{regional} is defined independent on the local release scenario.

NOTE: As in EUSES not all processes are considered as being completely linear.
(e.g. doubling of the river flow rate does not lead to doubling of the dilution factor)

A couple of acceptable predefined emission scenarios (water and soil) are presented in separate sheets as examples.

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Predefined emission scenarios for Acetone (PECwater)

Use volume (t/a)	Local Release factor (%)	Removal rate (%)	dilution factor (-)	Acceptable volume (t/a)	Defined for ERC	suitable also for ERC
Default		88	10			
Site specific		88 .. 98.5	20 ... 160			
<641	100	88	10	641	4 8a 8d 10 b 11b	all
<1000	100	88	20	1283	4 8a 8d 10 b 11b	all
<1000	100	93	10	1100	4 8a 8d 10 b 11b	all
<1000	100	93	100 (sea release)	1100	4 8a 8d 10 b 11b	all
<5000	100	88	80	5134	4 8a 8d 10 b 11b	all
<5000	50	88	40	5134	5	all except 4 8a 8d 10 11b
<5000	50	97	100 (sea release)	5134	5	all except 4 8a 8d 10 11b
<10000	50	88	80	10268	5	all except 4 8a 8d 10 11b
<10000	50	95,5	30	10268	5	all except 4 8a 8d 10 11b
<10000	6	88	100 (sea release)	10696	1	all except 4 5 8a 8d 10b 11b
<10000	6	88	10	10696	1	all except 4 5 8a 8d 10b 11b
<50000	6	88	50	53482	1	all except 4 5 8a 8d 10b 11b
<50000	6	97,5	100 (sea release)	51343	1	all except 4 5 8a 8d 10b 11b
<50000	6	94	25	53482	1	all except 4 5 8a 8d 10b 11b
<50000	2	88	25	64197	2 6a 8b 8e	3 6d 8c 8f 10a 11a
<100000	6	88	100	106965	1	all except 4 5 8a 8d 10b 11b
<100000	2	96,5	100 (sea release)	110021	2 6a 8b 8e	3 6d 8c 8f 10a 11a
<100000	1	92,5	100 (sea release)	102686	8c 8f	3 6d 10a 11a
<100000	1	88	20	128358	8c 8f	3 6d 10a 11a
<500000	2	88	160	513433	2 6a 8b 8e	3 6d 10a 11a
<500000	1	98,5	100 (sea release)	513433	8c 8f	3 6d 10a 11a
<500000	1	88	80	513433	8c 8f	3 6d 10a 11a
<500000	0,2	93	100 (sea release)	550107	3	6d 10a 11a

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Predefined Environmental Release Classes

ERC	Environmental Release Class	Default Release Fraction
ERC 1	Production of chemicals	6,00%
ERC 2	Formulation of preparations	2,00%
ERC 3	Formulation in articles	0,20%
ERC 4	Industrial use of processing aids	100,00%
ERC 5	Industrial use resulting in inclusion into or onto a matrix	50,00%
ERC 6a	Industrial use of intermediates	2,00%
ERC 6b	Industrial use of reactive processing aids	5,00%
ERC 6c	Production of plastics	5,00%
ERC 6d	Production of resins/rubbers	0,005%
ERC 7	Industrial use of substances in closed systems	5,00%
ERC 8a	Wide dispersive indoor use of processing aids in open systems	100,00%
ERC 8b	Wide dispersive indoor use of reactive substances in open systems	2,00%
ERC 8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix	1,00%
ERC 8d	Wide dispersive outdoor use of processing aids in open systems	100,00%
ERC 8e	Wide dispersive outdoor use of reactive substances in open systems	2,00%
ERC 8f	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	1,00%
ERC 9b	Wide dispersive outdoor use of substances in closed systems	5,00%
ERC 10a	Wide dispersive outdoor use of long-life articles and materials with low release	0,16%
ERC 10b	Wide dispersive outdoor use of long-life articles and materials with high or intended release	100,00%
ERC 11a	Wide dispersive indoor use of longlife articles and materials with low release	0,05%
ERC 11b	Wide dispersive indoor use of longlife articles and materials with high or intended release	100,00%

Predefined emission scenarios for Actone (Entry route: Sludge and aerial deposition, PECsoil)

Use volume (t/a)	Local Release factor water (%)	Local Release factor air (%)	Acceptable use volume (t/a)	Defined for ERC	suitable also for ERC
<6500	100	100	6516	4 8a 8d 10 b 11b	all
<100000	6	5	118474	1	2 3 6a 6b 6c 8b 8e 9b 10a 11a
<250000	2	2,5	289603	2	8b 8e 10a 11a
<500000	2	0,1	620577	8b 8e	10a 11a
< 6 Mio	0,16	0,05	6205770	ERC 10a	11a
< 13 Mio	0,05	0,05	13032118	ERC 11a	
any	dry sludge <10000 mg/kg	air release below 300000 t/a	any	all	

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Predefined Environmental Release Classes

ERC	Environmental Release Class	Default Release Fraction	Release fraction air
ERC 1	Production of chemicals	6,00%	5,00%
ERC 2	Formulation of preparations	2,00%	2,50%
ERC 3	Formulation in articles		
ERC 4	Industrial use of processing aids	2,00%	2,50%
ERC 5	Industrial use resulting in inclusion into or onto a matrix	0,20%	30,00%
ERC 6a	Industrial use of intermediates	100,00%	100,00%
ERC 6b	Industrial use of reactive processing aids	50,00%	50,00%
ERC 6c	Production of plastics	2,00%	5,00%
ERC 6d	Production of resins/rubbers	5,00%	0,10%
ERC 7	Industrial use of substances in closed systems	5,00%	5,00%
ERC 8a	Wide dispersive indoor use of processing aids in open systems	0,005%	35,000%
ERC 8b	Wide dispersive indoor use of reactive substances in open systems	5,00%	5,00%
ERC 8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix	100,00%	100,00%
ERC 8d	Wide dispersive outdoor use of processing aids in open systems	2,00%	0,10%
ERC 8e	Wide dispersive outdoor use of reactive substances in open systems	1,00%	15,00%
ERC 8f	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	100,00%	100,00%
ERC 9a	Wide dispersive outdoor use of substances in closed systems	2,00%	0,10%
ERC 9b	Wide dispersive outdoor use of substances in closed systems	1,00%	15,00%
ERC 10a	Wide dispersive outdoor use of long-life articles and materials with low release	5,00%	5,00%
ERC 10b	Wide dispersive outdoor use of long-life articles and materials with high or intended release	5,00%	5,00%
ERC 11a	Wide dispersive indoor use of longlife articles and materials with low release	0,16%	0,05%
ERC 11b	Wide dispersive indoor use of longlife articles and materials with high or intended release	100,00%	100,00%
		0,05%	0,05%
		100,00%	100,00%

Calculation of maximum tonnage to meet the acceptable soil concentration

All user input has to be done in the light blue fields, all other fields are locked

Calculation of maximum tonnage to meet the acceptable surface water concentration

- 1) Enter the concentration in dry sewage sludge (mg/kg) and continue with 2
If fraction is unknown -> leave field empty and continue
- 2) Enter the annual release into the air 2
If fraction is unknown -> leave field empty and continue
- 3) Enter Environmental Release Class ERC and continue with 4
If fraction is unknown -> leave field empty and continue
- 4) Enter release time and stop
If release time is unknown -> leave field empty and stop

Calculation of maximum tonnage to meet the acceptable surface water concentration

All user input has to be done in the light blue fields, all other fields are locked

Calculation of maximum tonnage to meet the acceptable surface water concentration

- 1) Enter background level (concentration in stream before your treatment plant)
If background level unknown -> leave field empty
- 2) Enter dilution factor of your waste water when entering the stream/sea and continue with 6)
If dilution is unknown -> leave field empty and continue
- 3) If your waste water is released into the sea, enter the effluent discharge rate of your municipal treatment plant you are connected to and continue
If effluent discharge rate is unknown or you release into a stream -> leave field empty and continue
- 4) If your waste water is released into a river -> enter flow rate of the river and continue
If flow rate of the river is unknown or you release into the sea -> leave field empty and continue
If you release into the sea -> set river flow rate to "0" and continue
- 5) Enter effluent discharge rate of your industrial plant and continue
If effluent discharge rate is unknown -> leave field empty and continue
- 6) Enter reduction rate of your WWTP and continue with 7)
If reduction rate unknown -> leave field empty and continue
- 7) Enter your compound release fraction in waste water (%) and continue with 8
If fraction is unknown -> leave field empty and continue
- 8) Enter Environmental Release Class ERC and continue with 9
If fraction is unknown -> leave field empty and continue
- 9) Enter release time and stop
If release time is unknown -> leave field empty and stop

Calculation of acceptable tonnage for downstream users

Compound/Substanz:

Acetone

Step	Parameter	Standard Input	User input	Considered Parameter
0	PNEC surface water (µg/L)	10600		10600
1	Background level (µg/L)	50		50,00
	maximum Conc. water, local (µg/L)	10550,00		10550,00
2	Dilution	10		10
3				0
4	Flow rate of the river (m ³ /d)	18000,00		18000
5	Effluent discharge rate of your industrial plant (m ³ /d)	2000		2000
6	Concentration in wastewater after the WWTP (mg/L)			105,5
	Reduction rate of the WWTP (%) **	88		88
	Concentration untreated wastewater (mg/L)			879,17
7	Release into waste water (kg/d)			1758,33
	Release fraction of the chemical (%)	100		100
8	Environmental Release Class ERC*			
9	Release time (d/y)	365		365
	Acceptable Use volume (t/a)			641,79

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* If you specific the ERC in field D18, you have to use exactly the same spelling as shown in column H, e.g. ERC 1

** The default reduction rate is based on the EUSES calculation.

ERC	Environmental Release Class	Release fraction
ERC 1	Production of chemicals	6,00%
ERC 2	Formulation of preparations	2,00%
ERC 3	Formulation in articles	0,20%
ERC 4	Industrial use of processing aids	100,00%
ERC 5	Industrial use resulting in inclusion into or onto a matrix	50,00%
ERC 6a	Industrial use of intermediates	2,00%
ERC 6b	Industrial use of reactive processing aids	5,00%
ERC 6c	Production of plastics	5,00%
ERC 6d	Production of resins/rubbers	0,005%
ERC 7	Industrial use of substances in closed systems	5,00%
ERC 8a	Wide dispersive indoor use of processing aids in open systems	100,00%
ERC 8b	Wide dispersive indoor use of reactive substances in open systems	2,00%
ERC 8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix	1,00%
ERC 8d	Wide dispersive outdoor use of processing aids in open systems	100,00%
ERC 8e	Wide dispersive outdoor use of reactive substances in open systems	2,00%
ERC 8f	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	1,00%
ERC 9b	Wide dispersive outdoor use of substances in closed systems	5,00%
ERC_10a	Wide dispersive outdoor use of long-life articles and materials with low release	0,16%
ERC_10b	Wide dispersive outdoor use of long-life articles and materials with high or intended release	100,00%
ERC_11a	Wide dispersive indoor use of longlife articles and materials with low release	0,05%
ERC_11b	Wide dispersive indoor use of longlife articles and materials with high or intended release	100,00%
		100,00%

No.	ERC	Environmental Release Class	Release fraction water	Release fraction air
1	ERC 1	Production of chemicals	6,00%	5,00%
2	ERC 2	Formulation of preparations	2,00%	2,50%
3	ERC 3	Formulation in articles	0,20%	30,00%
4	ERC 4	Industrial use of processing aids	100,00%	100,00%
5	ERC 5	Industrial use resulting in inclusion into or onto a matrix	50,00%	50,00%
6	ERC 6a	Industrial use of intermediates	2,00%	5,00%
7	ERC 6b	Industrial use of reactive processing aids	5,00%	0,10%
8	ERC 6c	Production of plastics	5,00%	5,00%
9	ERC 6d	Production of resins/rubbers	0,005%	35,000%
10	ERC 7	Industrial use of substances in closed systems	5,00%	5,00%
11	ERC 8a	Wide dispersive indoor use of processing aids in open systems	100,00%	100,00%
12	ERC 8b	Wide dispersive indoor use of reactive substances in open systems	2,00%	0,10%
13	ERC 8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix	1,00%	15,00%
14	ERC 8d	Wide dispersive outdoor use of processing aids in open systems	100,00%	100,00%
15	ERC 8e	Wide dispersive outdoor use of reactive substances in open systems	2,00%	0,10%
16	ERC 8f	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	1,00%	15,00%
17	ERC 9a	Wide dispersive outdoor use of substances in closed systems	0,00%	5,00%
18	ERC 9b	Wide dispersive outdoor use of substances in closed systems	5,00%	5,00%
19	ERC10a	Wide dispersive outdoor use of long-life articles and materials with low release	0,16%	0,05%
20	ERC10b	Wide dispersive outdoor use of long-life articles and materials with high or intended release	100,00%	100,00%
21	ERC11a	Wide dispersive indoor use of longlife articles and materials with low release	0,05%	0,05%
22	ERC11b	Wide dispersive indoor use of longlife articles and materials with high or intended release	100,00%	100,00%
23			100,00%	100,00%