§ 173.224 Packaging and control and emergency temperatures for self-reactive materials.

(a) *General.* When the §172.101 table of this subchapter specifies that a Division 4.1 material be packaged in accordance with this section, only packagings which conform to the provisions of this section may be used. Each packaging must conform to the general packaging requirements of subpart B of this part and the applicable requirements of part 178 of this subchapter. Non-bulk packagings must meet Packing Group II performance levels. To avoid unnecessary confinement, metallic non-bulk packagings meeting Packing Group I are not authorized. Self-reactive materials which require temperature control are subject to the provisions of §173.21(f). Packagings required to bear a Class 1 subsidiary label must conform to §§173.60 through 173.62.

(b) *Self-Reactive Materials Table.* The Self-Reactive Materials Table specifies, by technical name, those self-reactive materials that are authorized for transportation and not subject to the approval provisions of §173.124(a)(2)(iii). A self-reactive material identified by technical name in the following table is authorized for transportation only if it conforms to all applicable provisions of the table. The column headings of the Self-Reactive Materials Table are as follows:

(1) *Technical name.* Column 1 specifies the technical name.

(2) *ID number.* Column 2 specifies the identification number which is used to identify the proper shipping name in the §172.101 table.

(3) *Concentration of self-reactive material.* Column 3 specifies the concentration (percent) limitations, if any, in mixtures or solutions for the self-reactive material. Limitations are given as minimums, maximums, or a range, as appropriate. A range includes the lower and upper limits (i.e., “53–100” means from, and including, 53 percent to, and including 100 percent).

(4) *Packing method.* Column 4 specifies the highest packing method which is authorized for the self-reactive material. A packing method corresponding to a smaller package size may be used, but a packing method corresponding to a larger package size may not be used. The Table of Packing Methods in §173.225(d) defines the packing methods. Bulk packagings for Type F self-reactive substances are authorized by §173.225(f) for IBCs and §173.225(h) for bulk packagings other than IBCs. Additional bulk packagings are authorized if approved by the Associate Administrator.

(5) *Control temperature.* Column 5 specifies the control temperature in °C. Temperatures are specified only when temperature controls are required (see §173.21(f)).

(6) *Emergency temperature.* Column 6 specifies the emergency temperature in °C. Temperatures are specified only when temperature controls are required (see §173.21(f)).

(7) *Notes.* Column 7 specifies other applicable provisions, as set forth in notes following the table.

Self-Reactive Materials Table

Self-reactive substance (1)	Identification No. (2)	Concentration —(%) (3)	Packing method (4)	Control temperature —(°C) (5)	Emergency temperature (6)	Notes (7)
Acetone-pyrogallol copolymer 2-diazo-1-naphthol-5-sulphonate	3228	100	OP8			
Azodicarbonamide formulation type B, temperature controlled	3232	<100	OP5			1
Azodicarbonamide formulation type C	3224	<100	OP6			

Azodicarbonamide formulation type C, temperature controlled	3234	<100	OP6			1
Azodicarbonamide formulation type D	3226	<100	OP7			
Azodicarbonamide formulation type D, temperature controlled	3236	<100	OP7			1
2,2′-Azodi(2,4-dimethyl-4-methoxyvaleronitrile)	3236	100	OP7	–5	+5	
2,2′-Azodi(2,4-dimethylvaleronitrile)	3236	100	OP7	+10	+15	
2,2′-Azodi(ethyl 2-methylpropionate)	3235	100	OP7	+20	+25	
1,1-Azodi(hexahydrobenzonitrile)	3226	100	OP7			
2,2-Azodi(isobutyronitrile)	3234	100	OP6	+40	+45	
2,2′-Azodi(isobutyronitrile) as a water based paste	3224	≤50	OP6			
2,2-Azodi(2-methylbutyronitrile)	3236	100	OP7	+35	+40	
Benzene-1,3-disulphonylhydrazide, as a paste	3226	52	OP7			
Benzene sulphohydrazide	3226	100	OP7			
4-(Benzyl(ethyl)amino)-3-ethoxybenzenediazonium zinc chloride	3226	100	OP7			
4-(Benzyl(methyl)amino)-3-ethoxybenzenediazonium zinc chloride	3236	100	OP7	+40	+45	
3-Chloro-4-diethylaminobenzenediazonium zinc chloride	3226	100	OP7			
2-Diazo-1-Naphthol sulphonic acid ester mixture	3226	<100	OP7			4
2-Diazo-1-Naphthol-4-sulphonyl chloride	3222	100	OP5			
2-Diazo-1-Naphthol-5-sulphonyl chloride	3222	100	OP5			
2,5-Dibutoxy-4-(4-morpholinyl)-Benzenediazonium, tetrachlorozincate (2:1)	3228	100	OP8			
2,5-Diethoxy-4-morpholinobenzenediazonium zinc chloride	3236	67–100	OP7	+35	+40	
2,5-Diethoxy-4-morpholinobenzenediazonium zinc chloride	3236	66	OP7	+40	+45	

2,5-Diethoxy-4-morpholinobenzenediazonium tetrafluoroborate	3236	100	OP7	+30	+35	
2,5-Diethoxy-4-(phenylsulphonyl) benzenediazonium zinc chloride	3236	67	OP7	+40	+45	
2,5-Diethoxy-4-(4-morpholinyl)-benzenediazonium sulphate	3226	100	OP7			
Diethylene glycol bis(allyl carbonate) + Diisopropylperoxydicarbonate	3237	≥88+≤12	OP8	–10	0	
2,5-Dimethoxy-4-(4-methylphenylsulphony) benzenediazonium zinc chloride	3236	79	OP7	+40	+45	
4-Dimethylamino-6-(2-dimethylaminoethoxy)toluene-2-diazonium zinc chloride	3236	100	OP7	+40	+45	
4-(Dimethylamino)-benzenediazonium trichlorozincate (-1)	3228	100	OP8			
N,N′-Dinitroso-N, N′-dimethyl-terephthalamide, as a paste	3224	72	OP6			
N,N′-Dinitrosopentamethylenetetramine	3224	82	OP6			2
Diphenyloxide-4,4′-disulphohydrazide	3226	100	OP7			
Diphenyloxide-4,4′-disulphonylhydrazide	3226	100	OP7			
4-Dipropylaminobenzenediazonium zinc chloride	3226	100	OP7			
2-(N,N-Ethoxycarbonylphenylamino)-3-methoxy-4-(N-methyl-N-cyclohexylamino)benzenediazonium zinc chloride	3236	63–92	OP7	+40	+45	
2-(N,N-Ethoxycarbonylphenylamino)-3-methoxy-4-(N-methyl-N-cyclohexylamino)benzenediazonium zinc chloride	3236	62	OP7	+35	+40	
N-Formyl-2-(nitromethylene)-1,3-perhydrothiazine	3236	100	OP7	+45	+50	
2-(2-Hydroxyethoxy)-1-(pyrrolidin-1-yl)benzene-4-diazonium zinc chloride	3236	100	OP7	+45	+50	
3-(2-Hydroxyethoxy)-4-(pyrrolidin-1-yl)benzenediazonium zinc chloride	3236	100	OP7	+40	+45	

2-(N,N-Methylaminoethylcarbonyl)-4-(3,4-dimethyl-phenylsulphonyl) benzene diazonium zinc chloride	3236	96	OP7	+45	+50	
4-Methylbenzenesulphonylhydrazide	3226	100	OP7			
3-Methyl-4-(pyrrolidin-1-yl) benzenediazonium tetrafluoroborate	3234	95	OP6	+45	+50	
4-Nitrosophenol	3236	100	OP7	+35	+40	
Self-reactive liquid, sample	3223		OP2			3
Self-reactive liquid, sample, temperature control	3233		OP2			3
Self-reactive solid, sample	3224		OP2			3
Self-reactive solid, sample, temperature control	3234		OP2			3
Sodium 2-diazo-1-naphthol-4-sulphonate	3226	100	OP7			
Sodium 2-diazo-1-naphthol-5-sulphonate	3226	100	OP7			
Tetramine palladium (II) nitrate	3234	100	OP6	+30	+35	

Notes: 1. The emergency and control temperatures must be determined in accordance with §173.21(f).

2. With a compatible diluent having a boiling point of not less than 150 °C.

3. Samples may only be offered for transportation under the provisions of paragraph(c)(3) of this section.

4. This entry applies to mixtures of esters of 2-diazo-1-naphthol-4-sulphonic acid and 2-diazo-1-naphthol-5-sulphonic acid.

(c) *New self-reactive materials, formulations and samples.* (1) Except as provided for samples in paragraph (c)(3) of this section, no person may offer, accept for transportation, or transport a self-reactive material which is not identified by technical name in the Self-Reactive Materials Table of this section, or a formulation of one or more self-reactive materials which are identified by technical name in the table, unless the self-reactive material is assigned a generic type and shipping description and is approved by the Associate Administrator under the provisions of §173.124(a)(2)(iii).

(2) Except as provided by an approval issued under §173.124(a)(2)(iii), intermediate bulk and bulk packagings are not authorized.

(3) *Samples.* Samples of new self-reactive materials or new formulations of self-reactive materials identified in the Self-Reactive Materials Table in paragraph (b) of this section, for which complete test data are not available, and which are to be transported for further testing or product evaluation, may be assigned an appropriate shipping description for Self-reactive materials Type C, packaged and offered for transportation under the following conditions:

(i) Data available to the person offering the material for transportation must indicate that the sample would pose a level of hazard no greater than that of a self-reactive material Type B and that the control temperature, if any, is sufficiently low to prevent any dangerous decomposition and sufficiently high to prevent any dangerous phase separation;

(ii) The sample must be packaged in accordance with packing method OP2;

(iii) Packages of the self-reactive material may be offered for transportation and transported in a quantity not to exceed 10 kg (22 pounds) per transport vehicle; and

(iv) One of the following shipping descriptions must be assigned:

(A) Self-reactive, liquid, type C, 4.1, UN3223.

(B) Self-reactive, solid, type C, 4.1, UN3224.

(C) Self-reactive, liquid, type C, temperature controlled, 4.1, UN3233.

(D) Self-reactive, solid, type C, temperature controlled, 4.1, UN3234.

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