

*Yongliang Xiong*

**From:** Klein, Thomas - RES <Thomas.Klein@wipp.ws>  
**Sent:** Monday, January 22, 2018 8:35 AM  
**To:** Xiong, Yongliang; Kouba, Steve - WRES  
**Subject:** RE: [EXTERNAL] RE: MgO Emplacement Factor as of December 31, 2017

Yongliang,

Here are the answers to your questions.

1. What is the MgO emplacement factor as of December 31, 2017?

This table is from the quarterly change report as of December 31, 2017. The minimum safety factor is 1.20.

Magnesium Oxide (MgO) <sup>7</sup> and Cellulose, Plastic and Rubber (CPR) Mass Emplaced Per Waste Panel				
Panel	Room	MgO (kg)	CPR* (kg)	Excess Factor
1	all	4,482,355	1,237,732	1.87 <sup>8</sup>
2	2-7	5,972,300	1,241,928	2.26 <sup>8</sup>
2	1	691,515	186,200	1.71
3	7	960,120	104,831	4.03
3	6	954,405	228,033	1.95
3	5	1,022,985	284,651	1.70
3	4	960,120	255,054	1.79
3	3	931,545	243,860	1.89
3	2	944,880	227,889	2.03
3	1	662,940	183,072	1.76
4	7	942,975	248,903	1.90
4	6	925,830	267,494	1.71
4	5	948,690	265,302	1.71
4	4	1,049,655	290,739	1.76
4	3	1,015,365	285,755	1.70
4	2	931,545	374,327	1.22 <sup>7</sup>
4	1	668,655	265,884	1.23
5	7	937,260	353,262	1.28
5	6	875,477	140,009	2.85
5	5	782,346	298,808	1.24
5	4	737,167	225,425	1.64
5	3	714,286	215,937	1.61
5	2	730,612	194,045	1.84
5	1	485,714	135,742	1.75
6	7	744,218	167,581	2.11
6	6	666,667	189,857	1.74
6	5	474,294	203,473	1.24
6	4	471,586	202,410	1.25
6	3	406,533	171,306	1.25
6	2	291,716	121,686	1.22
6	1	235,107	80,223	1.46
7	7	57,692	15,900	1.76
7	6	99,320	28,832	1.83
7	5	14,966	2,399	2.72
7	4	92,517	15,887	2.53

Footnotes

1. Reporting Period is July 1, 2017, through December 31, 2017.
2. Cumulative period includes from the beginning of emplacement until December 31, 2017.
3. Limiting Value—Values from CRA 2014 Section 24. These values are based on inventory assumptions.
4. Cellulose, Plastic, Rubber Materials (CPR) includes the waste, container materials, emplacement materials and non-containerized waste.
5. Fe-Metals include both materials in the waste and containers in total.
6. There is no decay correction for the listed isotope activities. All isotopic activities reported are from the time of the original assay. It is understood that some isotopes may have reached secular equilibrium after disposal.
7. New minimum value for excess factor of MgO to be implemented as approved by EPA (February 11, 2008) reduces excess factor from 1.67 to 1.20 and ensures minimum reactivity of 94%.
8. MgO, CPR and Excess Factor results for all of panel 1 and rooms 2-7 of panel 2 have been recalculated to replace averaged data with actual emplaced data.

**2. Are the packing materials for MgO supersacks still polypropylene?**

Yes, the MgO sacks are still polypropylene with cardboard stiffeners. Metal stiffeners were being looked at but found to interfere with allowing the sacks to rupture under pressure, as they are designed to do.

**3. Is any change related to MgO supersacks since December 31, 2012?**

No, there has been no change since December 31, 2012.

I hope this helps.

*Thomas M. Klein*

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**From:** Xiong, Yongliang [mailto:yxiong@sandia.gov]  
**Sent:** Friday, January 19, 2018 2:58 PM  
**To:** Kouba, Steve - WRES <Steve.Kouba@wipp.ws>  
**Cc:** Klein, Thomas - RES <Thomas.Klein@wipp.ws>  
**Subject:** RE: [EXTERNAL] RE: MgO Emplacement Factor as of December 31, 2017

Steve, Tom,

Thanks.

Yongliang

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**From:** Kouba, Steve - WRES [mailto:Steve.Kouba@wipp.ws]  
**Sent:** Friday, January 19, 2018 2:56 PM  
**To:** Xiong, Yongliang  
**Cc:** Klein, Thomas - RES  
**Subject:** [EXTERNAL] RE: MgO Emplacement Factor as of December 31, 2017

Yongliang

Tom Klein is our MgO Subject Matter Expert.

By copy of this letter, I am asking him to respond to your questions.

He will be back in the office on Monday.

Thank you.

Steve Kouba

Manager, EPA Compliance Programs

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**From:** Xiong, Yongliang [<mailto:yxiong@sandia.gov>]

**Sent:** Friday, January 19, 2018 12:41 PM

**To:** Kouba, Steve - WRES <[Steve.Kouba@wipp.ws](mailto:Steve.Kouba@wipp.ws)>

**Subject:** MgO Emplacement Factor as of December 31, 2017

Hi Steve,

I have the following three questions related to MgO for you:

- (1) What is the MgO emplacement factor as of December 31, 2017?
- (2) Are the packing materials for MgO supersacks still polypropylene?
- (3) Is any change related to MgO supersacks since December 31, 2012?

Thanks.

Yongliang

Yongliang XIONG, Ph.D.

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